ARCHITECTURE

VOLUME LXIII MARCH 1931 NUMBER 3

Raymond Hood

By Rayne Adams

The profession's interest in the individual architect is perhaps chiefly in his achievements—the finished work itself; by it he is judged. The road he has travelled to reach the goal is seldom known to any but a few intimates. His training, his methods, his relations to his clients and to his associates, his philosophy of life—these vital factors in his achievements are seldom revealed. It is a pity, for by knowing the man we are better able to appreciate his work. We have asked Mr. Adams, himself an architect and a philosopher, with a keen insight and a facile pen, to make better known to us some of the outstanding architects of our generation in the United States.—EDITOR.

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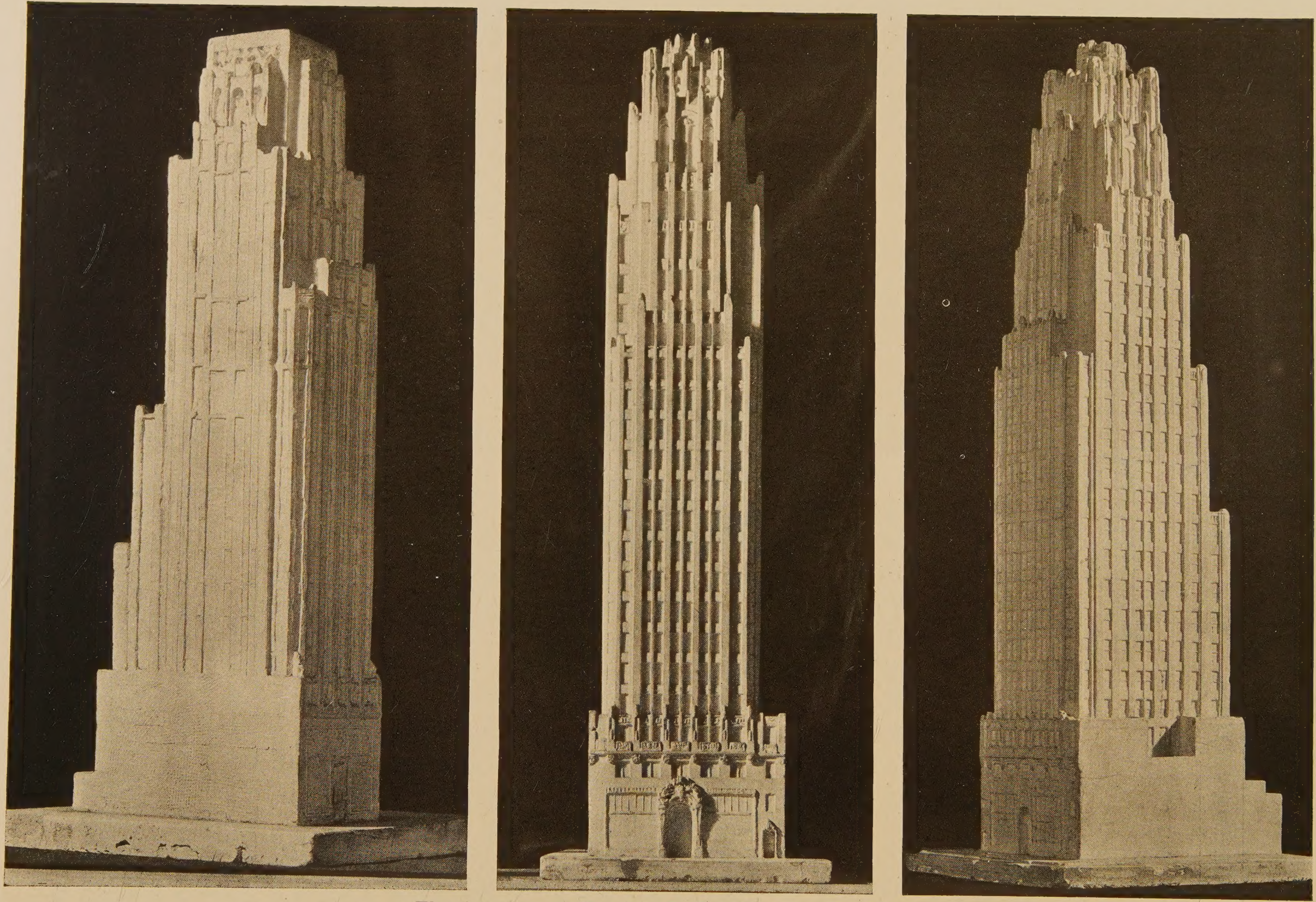
THOSE who have followed the later development of the architectural work of Raymond M. Hood must be impressed with the fact that certainly one aspect of academic pedagogical training made little lasting impression upon him, subject though he was to such training here and abroad for the better part of ten years. Institutions have the habit of fostering rules rather than encouraging whims, and rules are something Hood makes a point of forgetting. Hood long ago took for his patron saint in architecture one whose name is Whim. This patron, however, has another name, though Hood doesn't know it. That name is Reason. And the most interesting thing about Hood's attitude toward architecture is that his reasons are whimsical and his whims reasonable. This paradox explains much. I don't know whether his kinship to Zeno would be of even passing interest to the subject of this review, but I do know that Hood's architectural conceptions are the fruit of the paradoxes which he cultivates in his mental garden.

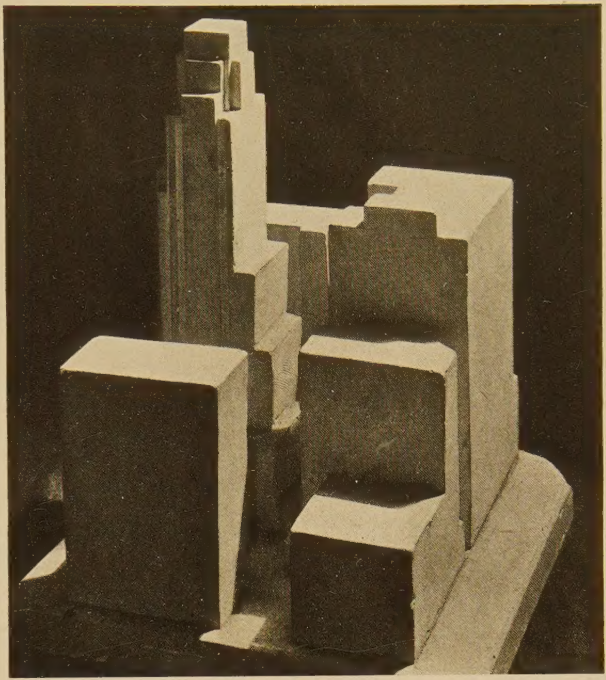
For years Hood has practised the trick of turning all his thoughts, as it were, inside out, to see what is on the other side. Suppose that it be asserted that St. Peter's in Rome looks well as it stands: the instant question arises, would it look better upside down? Who was Michael Angelo anyway? Heresy or anarchy, which? Perhaps both. But heresy is a matter of definition and anarchy in architecture only spells individualism. And whereas to most people the habit of questioning things is a tiring performance and the average person seeks the shade provided by the oases of accepted methods and conceptions, the good fortune is given to a few to find their strength in challenging everything. We use glass for windows. To most of us glazed windows seem to provide a proper means for admitting light to our buildings. But this is only because our minds are in a rut. Such unquestioning acceptance is a sign of mental debility. Isn't there a better method to use? Why have windows anyway? That it is contrary to architectural precedent to employ three columns under a pediment brings up the question: Why use columns at all? That no immediate answers to these questions may be found has no bearing on the matter.

Yet, as every one knows, everything ends in a compromise. We question—but even Mr. Phyrro had to decide in the end whether he would have lentils or lotus leaves for breakfast. And even with the most open-minded of men, there must be, though it be a temporary affair, some sort of backbone to his thought if he is going to arrive at anything more creditable than the cackle of a barnyard rooster. In the mercurial shiftings of Hood's speculations, apparently there is born with every whim a corresponding dogma. Most of these perish shortly, but there is one which persists, and that is that buildings should be designed to meet the specific



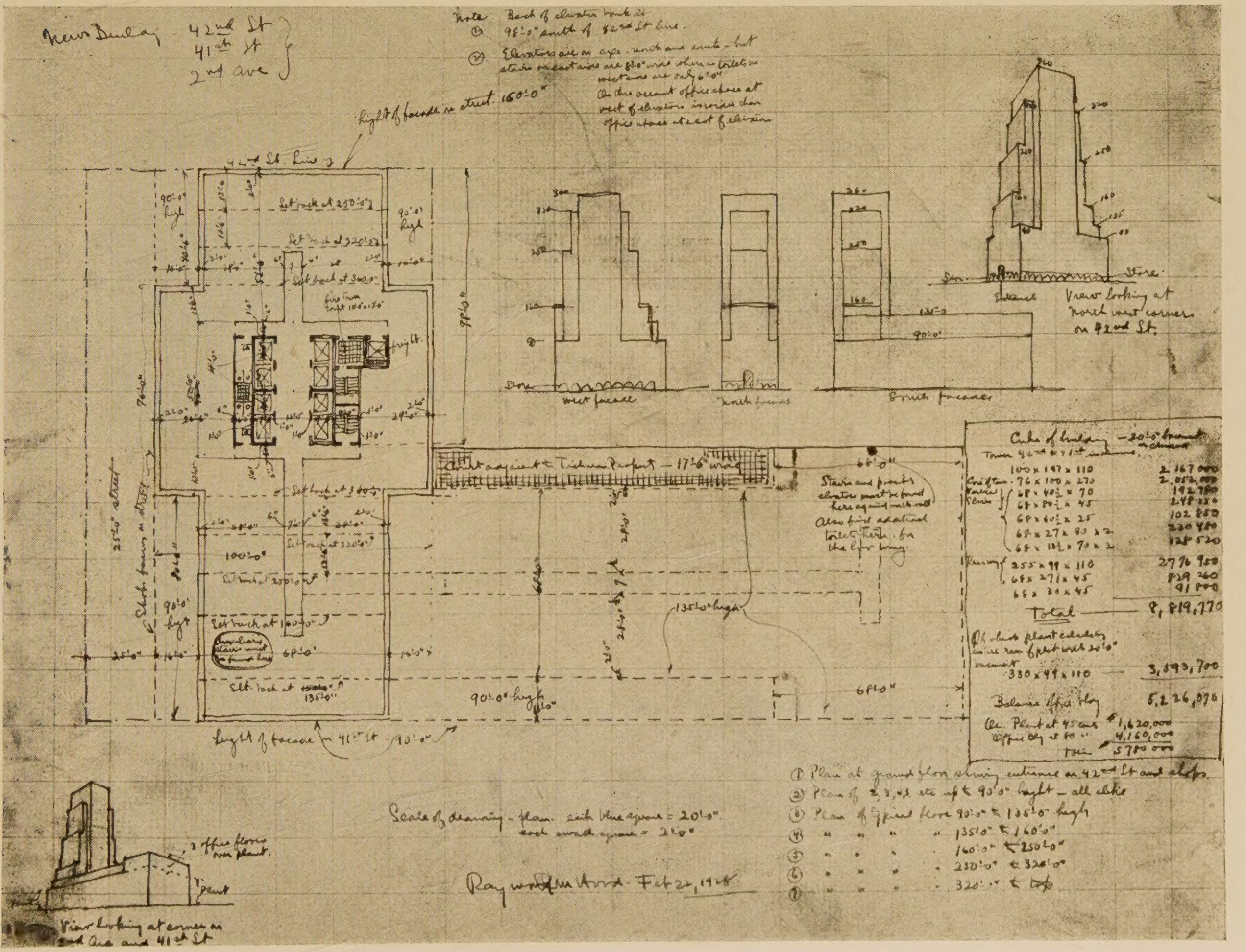
Three successive studies of the Radiator Building, New York purpose for which they are intended without admixture of sentimental predilections for the way in which such buildings have been interpreted by others. This one dogma throws overboard not only all the *Grands Prix* but *Le Corbussier* as well.

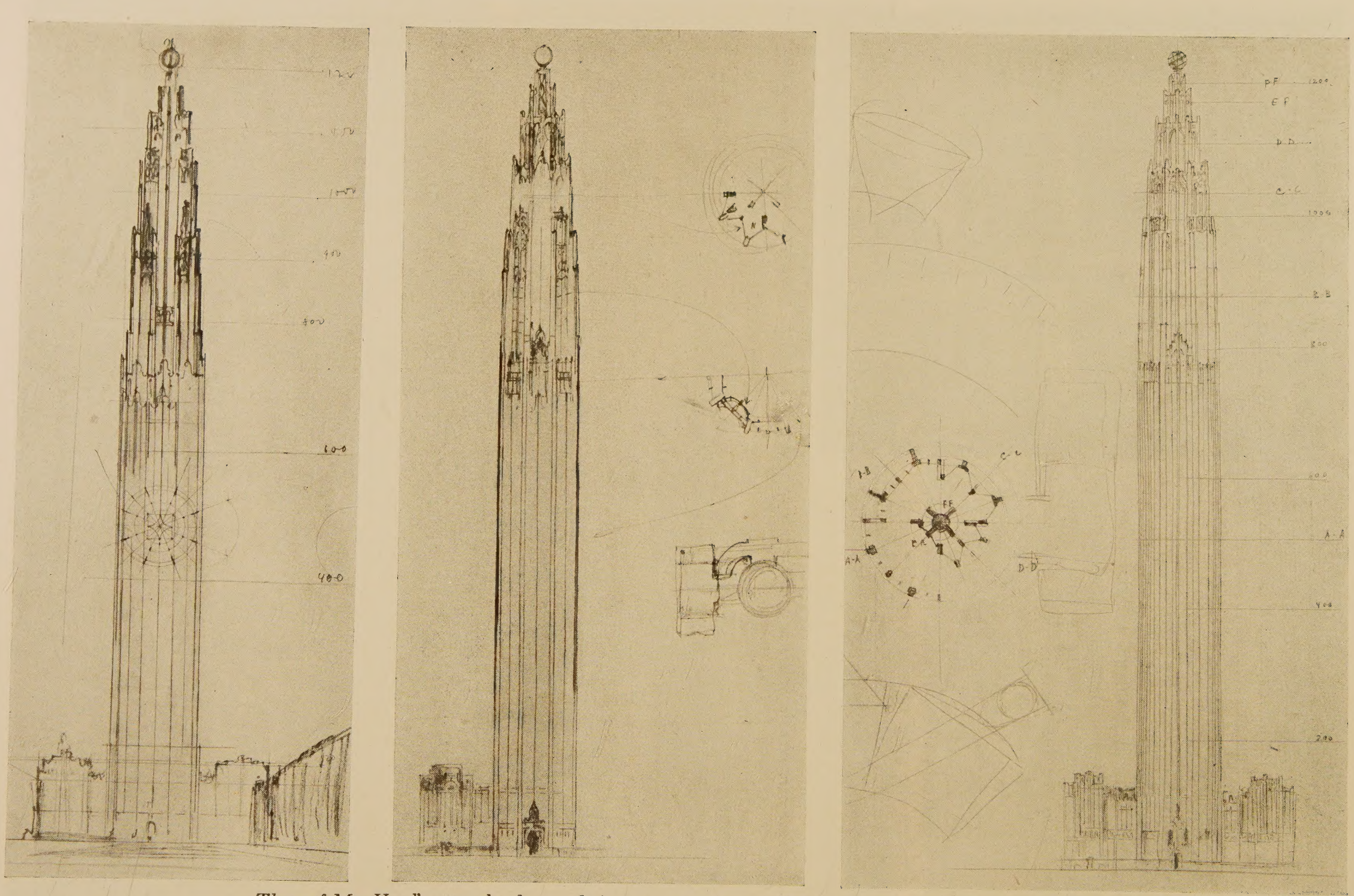
The constant habit of conscious questioning, the reaching out for some expression which will solve his architectural problems without reference to the preachings of the academic, is admirable enough. Certainly it does make for mental elasticity. You are doubtless familiar with the old-fashioned kaleidoscopes containing pieces of colored glass, which, on being revolved, never repeat the same pattern. Hood, figuratively, is always engaged in looking into such a kaleidoscope, only instead of bits of glass the kaleidoscope contains the stuff of which architectural conceptions are formed. Timid and tired people fear exaggeration. There is no conception, however bizarre, which Hood finds in his kaleido-



Above, a model at $\frac{1}{32}$-inch scale of the Radiator Building and its neighbors, to study the lighting of sides and rear

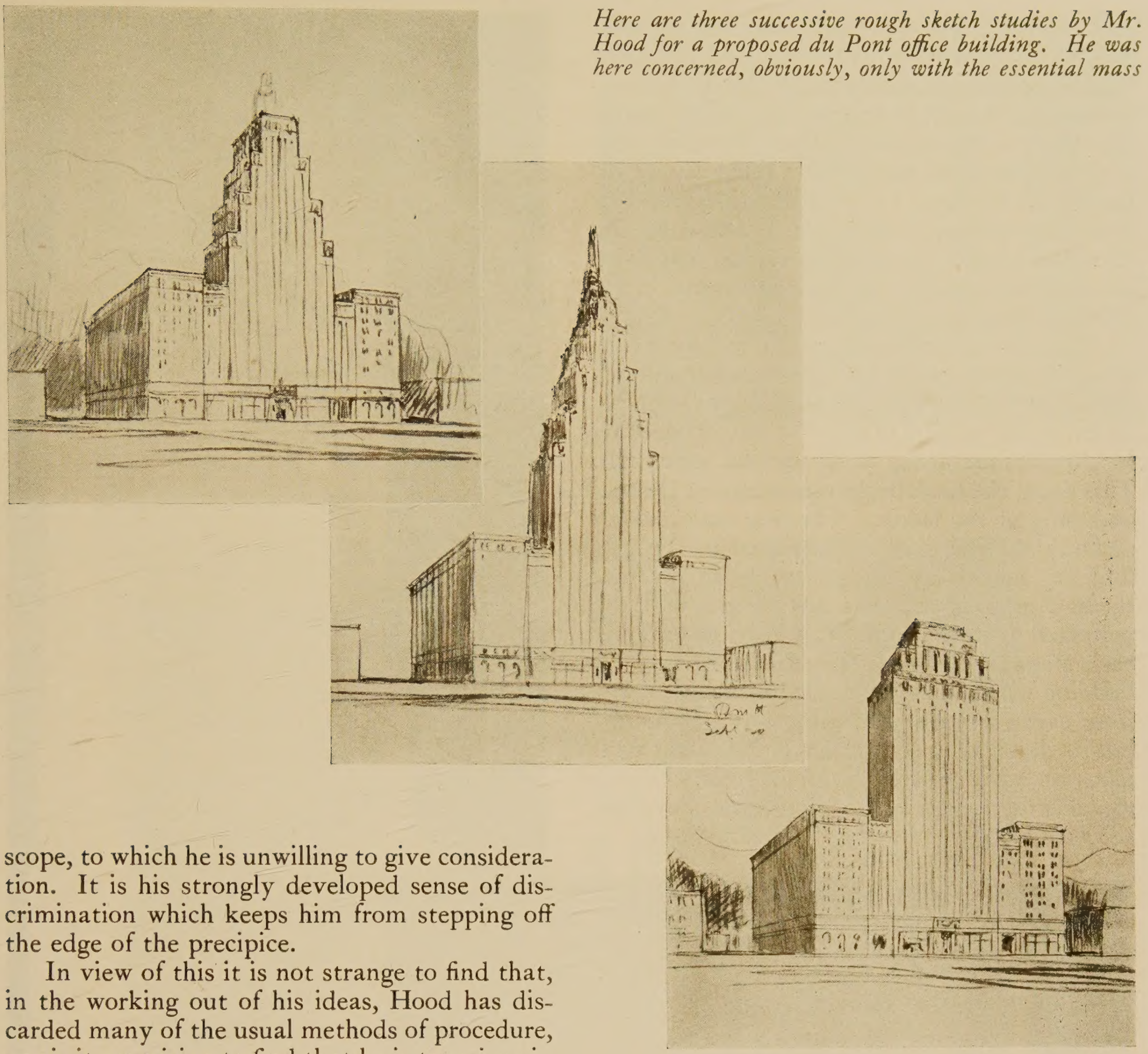
Below is shown Mr. Hood's first study for the Daily News Building—a comprehensive summary of the requirements and the restrictions involved in the site


News Building 42nd St 41st St 2nd ave
Note ① Back of elevator bank is 98'-0" south of 42nd St line.
② Elevators are on axis, north and south – but stairs on east are 8'-0" wide where toilets on west are only 6'-0"
On this account office space at west of elevators is wider than office space at east of elevators
hight of facade on street 160'-0"
42nd St. line
90'-0" high
Set back at 250'-0"
Set back at 320'-0"
Set back at 300'-0"
Set back at 160'-0"
Set back at 250'-0"
Set back at 135'-0"
90'-0" high
hight of facade on 41st St 90'-0"
west facade
north facade
South facade
View looking at north west corner on 42nd St.
Street
Cube of building – 20'-0" basement
100 x 197 x 110 — 2 167 000
76 x 100 x 270 — 2,052,000
68 x 40½ x 70 — 192 780
68 x 80½ x 45 — 248 184
68 x 60½ x 25 — 102 850
68 x 27 x 90 x 2 — 330 480
68 x 13½ x 70 x 2 — 128 520
255 x 99 x 110 — 2776 950
68 x 271 x 45 — 829 260
68 x 30 x 45 — 91 800
Total — 8,819,770
330 x 99 x 110 — 3,593,700
Balance office bldg 5,226,070
Plant at 45 cents $1,620,000
Office bldg at 80 " 4,160,000
Total $5780 000
① Plan at ground floor showing entrance on 42nd St and shops.
② Plan of 2, 3, 4, 5 etc up to 90'-0" height – all alike
③ Plan of typical floor 90'-0" to 135'-0" high
④ " " " " 135'-0" to 160'-0"
⑤ " " " " 160'-0" to 250'-0"
⑥ " " " " 250'-0" to 320'-0"
⑦ " " " " 320'-0" to top
Scale of drawing – plan – each blue square = 20'-0" each small square = 2'-0"
Raymond M Hood – Feb 24, 1928
3 office floors over plant.
plant
View looking at corner on 2nd Ave and 41st St



Three of Mr. Hood's own sketches made in the study of possibilities in a proposed "Electric Tower"

Here are three successive rough sketch studies by Mr. Hood for a proposed du Pont office building. He was here concerned, obviously, only with the essential mass

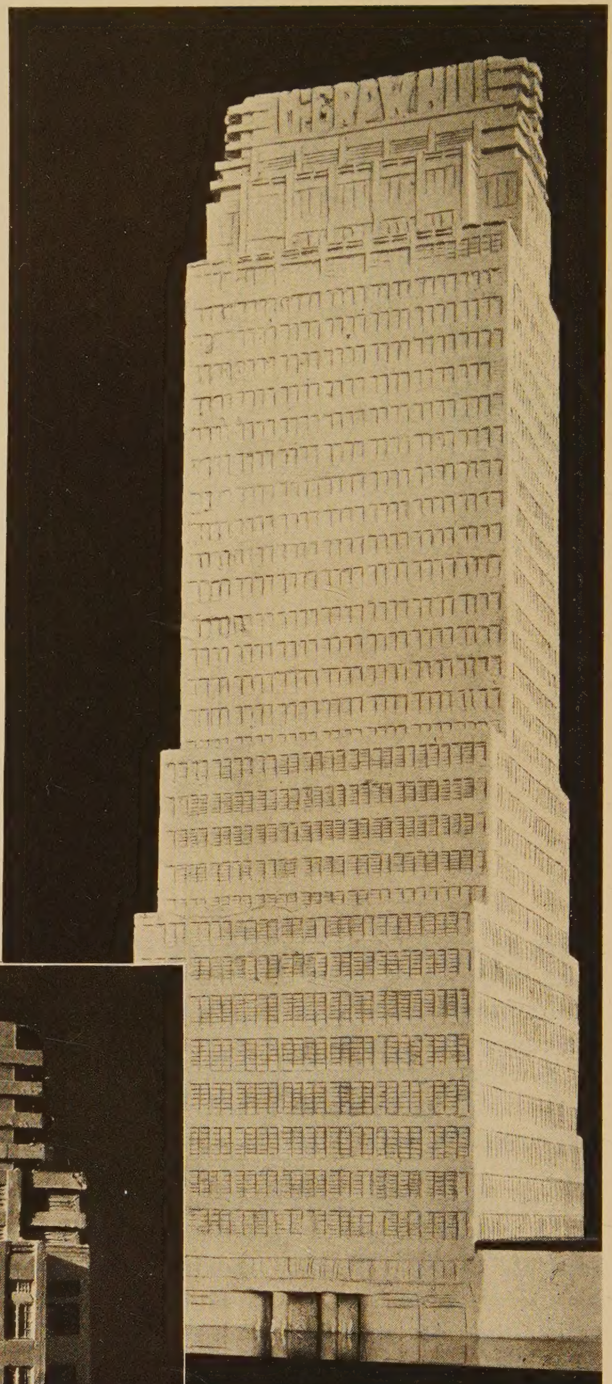


scope, to which he is unwilling to give consideration. It is his strongly developed sense of discrimination which keeps him from stepping off the edge of the precipice.

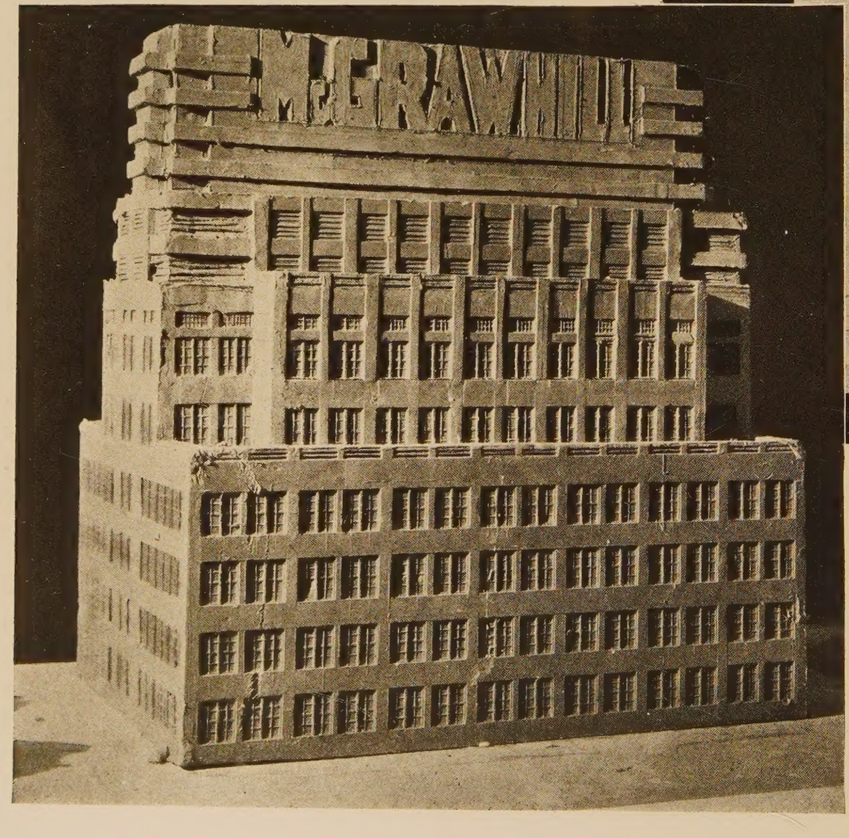
In view of this it is not strange to find that, in the working out of his ideas, Hood has discarded many of the usual methods of procedure, nor is it surprising to find that he is tenacious in the expression of his conceptions. Ten years ago he used the medium of pencil and paper to record his studies. To-day he uses models. But his use of models is very different from that in which they are commonly employed. The use of clay or plasticine models probably began as soon as clay was discovered and plasticine invented, but, bridging history with a single bound, we may consider the use made of these materials by contemporary architects. Generally speaking, small-scale models are made *after* the building is designed on paper. Frequently they are thus made only for the purpose of startling the client into a pleased understanding of what his building is to look like. The other common use of models is that of making full-size details, particularly of ornament. But here again, these models are frequently made *after* the working drawings have been completed and the thousand-and-one conditions which constitute a building frozen into unchangeability.

Hood's method in using models may be briefly stated. After he has arrived at a conception of his building—though it be vague at times—he begins at once to study it, not on paper but by the use of small-scale plasticine models. In this work, it may be added parenthetically, he suffers from an undeniable handicap, common, I suppose, practically to all architects. Architects are trained to draw, not to model. Whether or not Hood's assertion that small-scale models should be introduced into the curricula of architectural schools as the proper and essential method of studying architectural design be correct, his own training in this matter is a melancholy comment on what was to be gained from the brief and desultory course he took in modelling at M. I. T., supplemented though it was by the eight-hour *en loge* when he entered the École. However that may be, Hood has hurdled this difficulty by engaging the services of a gifted modeller, familiar with architectural forms, who works with him and who is able to interpret rapidly and with sureness such rough sketches or such oral directions as Hood may give him.

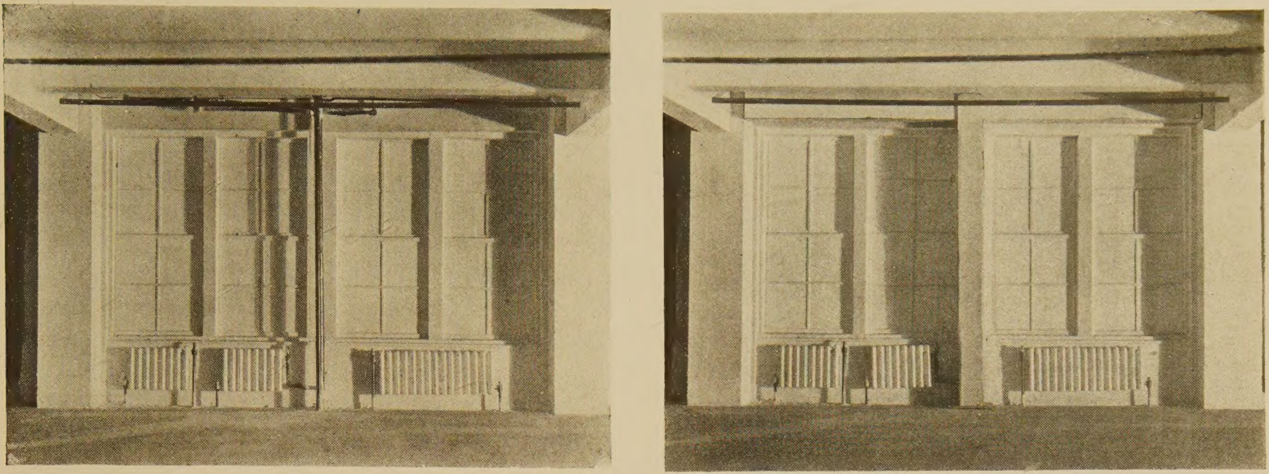
These rough studies in plasticine, by means of which several *partis* may be tried out and discussed, are followed by the draftsman's interpretation of one or more of them by way of checking heights, dimensions, and various essentials. This done, the modeller can now mount the second rung of the ladder. The new scale models embody the information contained in the preliminary models and the drawings made from them. And so on, by a see-saw process, until the perfected model at larger scale is arrived at. At each stage of the game Hood knows what his building will look like, not only in elevation, but from every point of view, not only in its mass but its detail also. The errors of imperfect visualization, which arise so commonly because such visualization is not checked by the use of models, are with Hood's method largely eliminated.



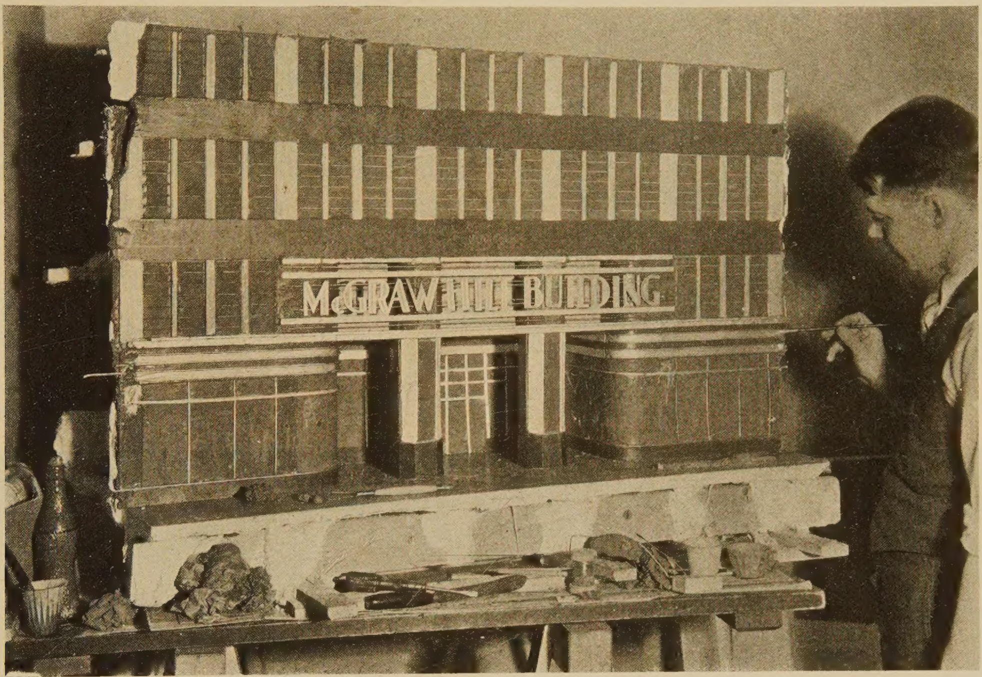
Sixteenth-inch scale model in plasticine of the McGraw Hill Building, the first step in study after the establishment of the typical floor plans



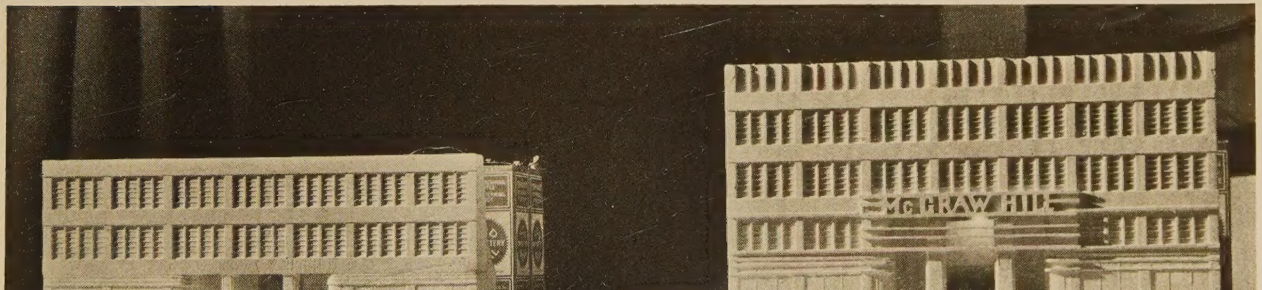
Eighth-inch scale model made as a study in further detail of the top of the McGraw Hill Building



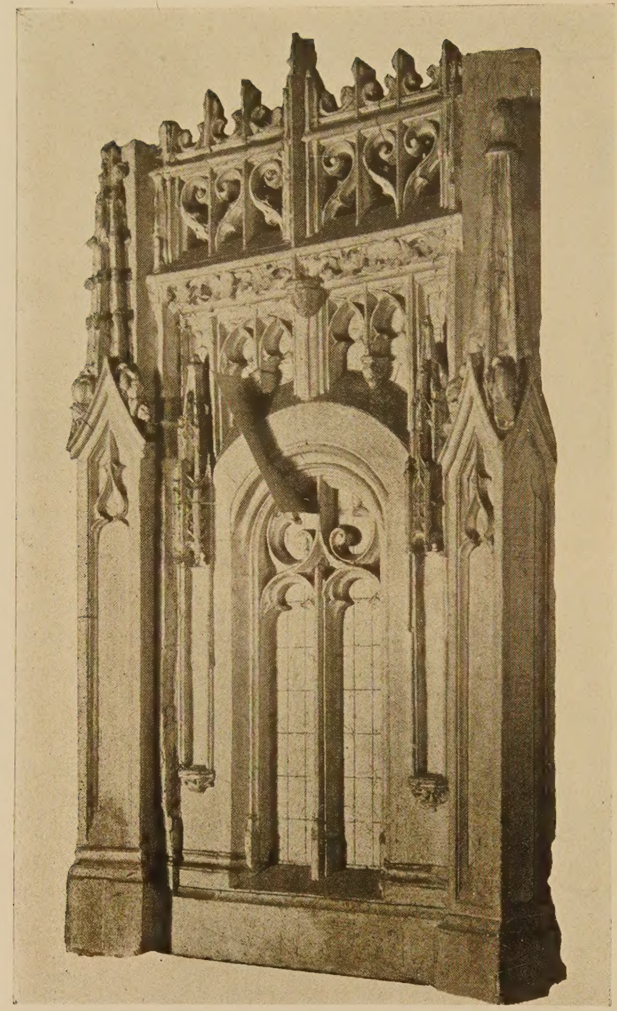
Here is a typical bay in the McGraw Hill Building which will be duplicated perhaps a thousand times. An inch-scale model was made to make sure that the piping could be confined within the furring (made of cardboard and set up in the right-hand photograph)



Quarter-inch model of the entrance and lower stories, made after the two smaller models shown below, on which the effect of materials and color may be studied



The comparative effects of a one-story and a two-story main entrance. The right-hand model showed at once that a second story could be reclaimed from the outside lobby as in the model above



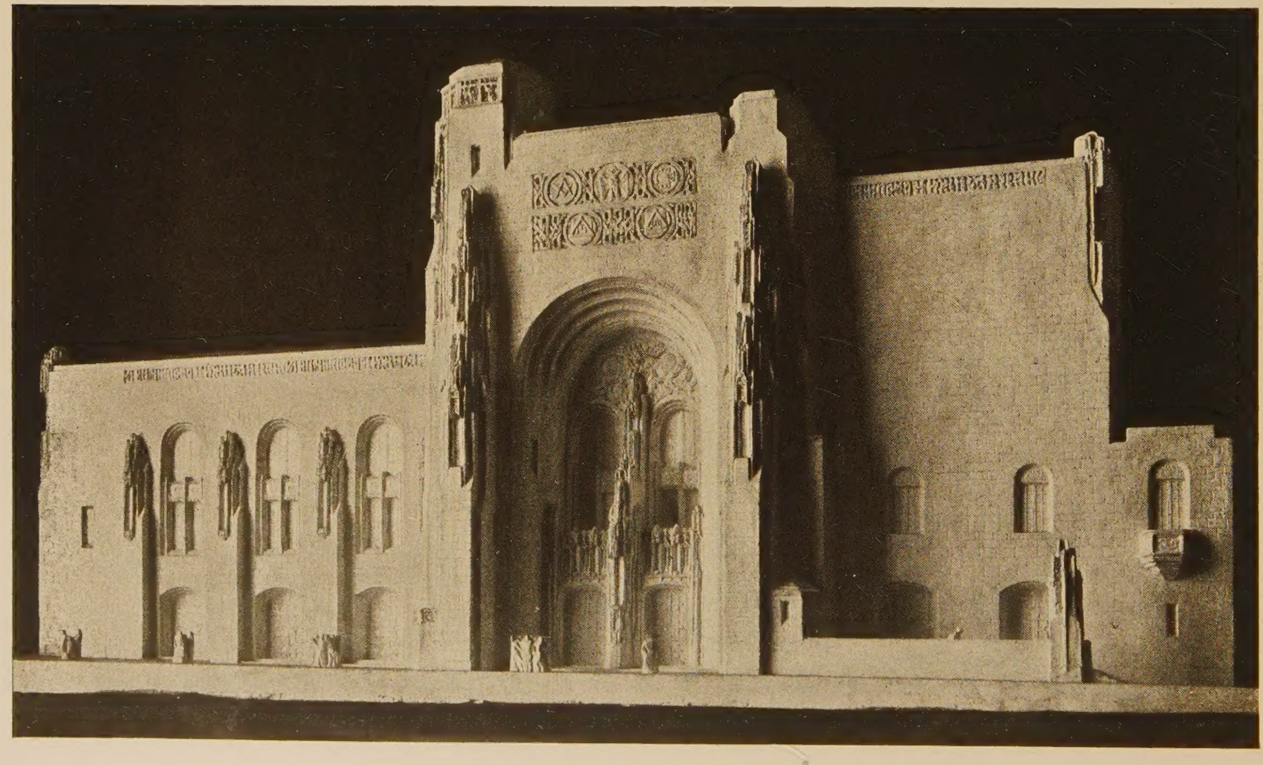
It will readily be seen that the inter-relation of model and working drawing must inevitably lead to a completer comprehension of the building than can be obtained by drawings alone. Even though a flock of perspectives as numerous as the lost thumbtacks of the world be made, *still* these perspectives are but two-dimensioned drawings, and unless Mr. Einstein shall prove us wrong, a building has at least three dimensions. Moreover, according to Hood's opinion, based on his experience, the time saved by this method of using models is very great, so great, in fact, as far to outweigh the expense involved in engaging the services of a professional modeller.

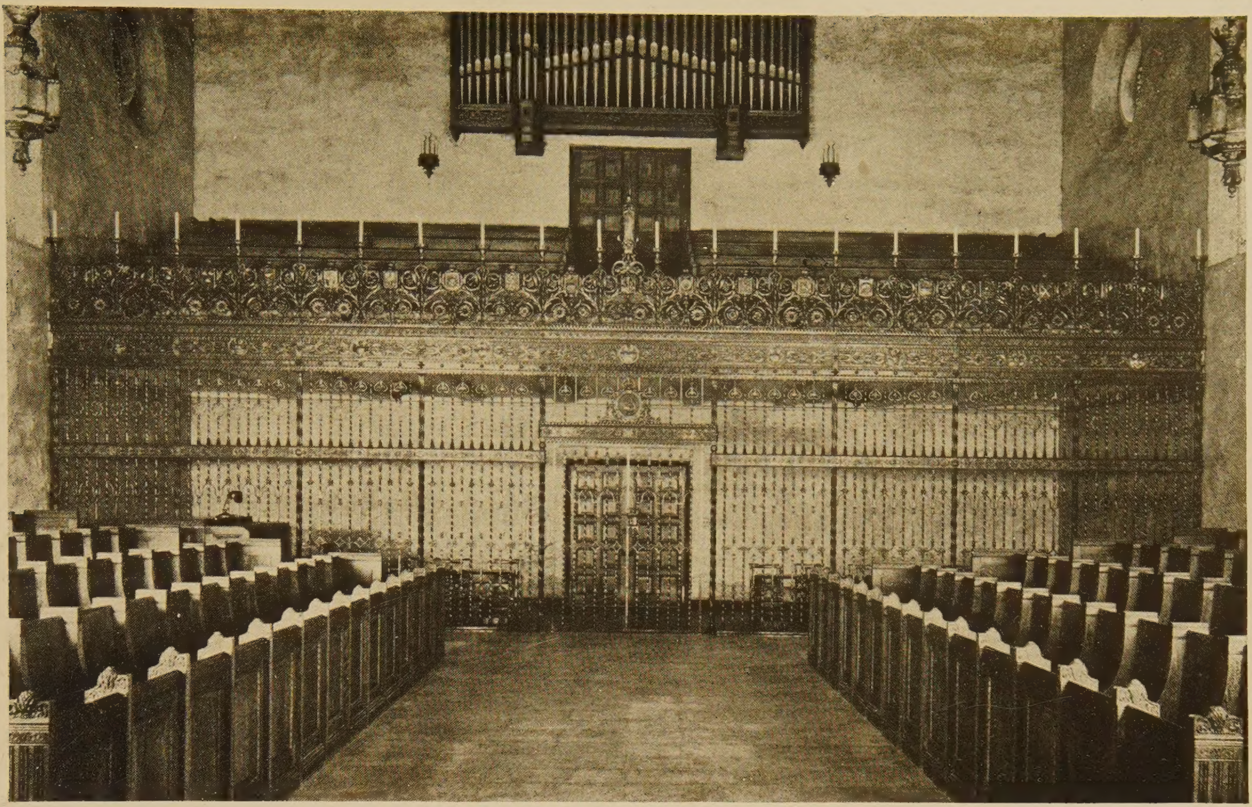
* * *

Whether or not this method is especially adapted to buildings such as constitute a large part of Hood's practice—office buildings and the like—is perhaps debatable. Certain it is that most architects will not immediately forsake the methods of the drawing-board which have been hallowed by tradition. Yet revolutions are born every day, even though we be unconscious of their beginnings.

Final model of Tribune Tower detail, 1½-inch scale, in which saw cuts permit the tracing of profiles for final drawings

Mr. Hood finds more aid to satisfactory design in this quarter-inch scale model of the Scranton Masonic Temple than in fifty drawings





Choral screen across one end of the Main Chapel, Brooklyn Diocesan Seminary of the Immaculate Conception, Huntington, Long Island. Robert J. Reiley, architect

Craftsmanship in Wrought Iron To-day

By Eugene Clute

It is not uncommon, even in the architectural profession, to hear lamentations over the lack of genuine craftsmanship in our time, with accompanying sighs over the days that are gone. This attitude is not justified by the facts. We have craftsmen in the metals, glass, tile, mosaic, wood, faience, who have not only held high the torch but have carried it forward. This article and others to follow will substantiate this contention.

—Editor.

CONTRARY to the prevailing belief, thorough hand craftsmanship in wrought iron is not a thing of the past and, when performed by skilled men who work in this material with directness and freedom, it is not unduly expensive.

In fact, genuine hand work, done in accordance with the best old traditions of the craft, often costs but little, if any, more than the makeshifts and substitutes commonly offered by those who are forced to these expedients by lack of skill or are misled by the thought that the substitution of something inferior must necessarily save money.

This is strikingly demonstrated in the case of repoussé work in iron, such bands of ornament in relief, medallions, cartouches, and even figures in the round, as play an important and beautiful part in much of the finest old wrought-iron work. A skilful craftsman can hammer such designs out of the iron in genuine repoussé for less, very often, than the cost of cast-iron imitations. This is true because the cost of the patterns, casting, and subsequent finishing required in cast-iron work is saved.

Where the repetition of a motive many times is permitted, the cast work may be the cheaper, but when the cost of fitting the castings into the rest of the work, added to whatever effort may be made to simulate the surface appearance of wrought iron, is taken into account, even this seeming advantage is often lost.

Welding leaf-hammered details, such as

leaves, husks, and the petals of conventional flower forms, is not only the best way of attaching them, but also the easiest way for a good craftsman.

Forging collars right in the bars of balusters and the like, using sufficiently heavy iron and hammering it down to the size required in other parts, may seem like an unnecessarily laborious way of arriving at a result. But to the man who is a master of iron, it is not so very difficult and it does away with the necessity for drilling the bars, forging the collars separately, slipping them on and riveting them in place, and how much better the result is both in solidity and appearance!

At this point it may be well to say that though cast iron is always bad when it is used as an imitation of wrought iron, it is an excellent material when it is used frankly as cast iron in designs made with an appreciation of its limitations and possibilities.

There is, of course, no virtue in the mere fact that an object is made by hand. To have value the work must be good. Clumsiness and crudity are not characteristics of the best old hand work. They are found in objects, chiefly utilitarian in their purpose, upon which the craftsman was not warranted in expending much labor, or objects made by the less-skilled artisans. Good hand craftsmanship has an expressiveness, beauty, and loveliness all its own, and this is especially true of wrought iron.

* * *

To illustrate in practical detail the points made above, photographs and drawings are shown here of a recently completed work of thorough hand craftsmanship in wrought iron, the choral grille in the Main Chapel of the Brooklyn Diocesan Seminary of the Immaculate Conception at Huntington, Long Island, of which Robert J. Reiley was the architect. This grille and many other fine pieces of wought-iron work for this seminary were executed under the direction of Frederick W. Bergmueller, who hides his personality under the name of the Ferro Studio, Inc.

Extending entirely across the chapel, near the rear, this screen separates the body of the chapel, which is reserved for the seminarians, from the small area under the choir balcony to which others are admitted. The edge of the balcony floor is back of the frieze of the grille and the ornamental crowning member serves as a railing at the front of the balcony.

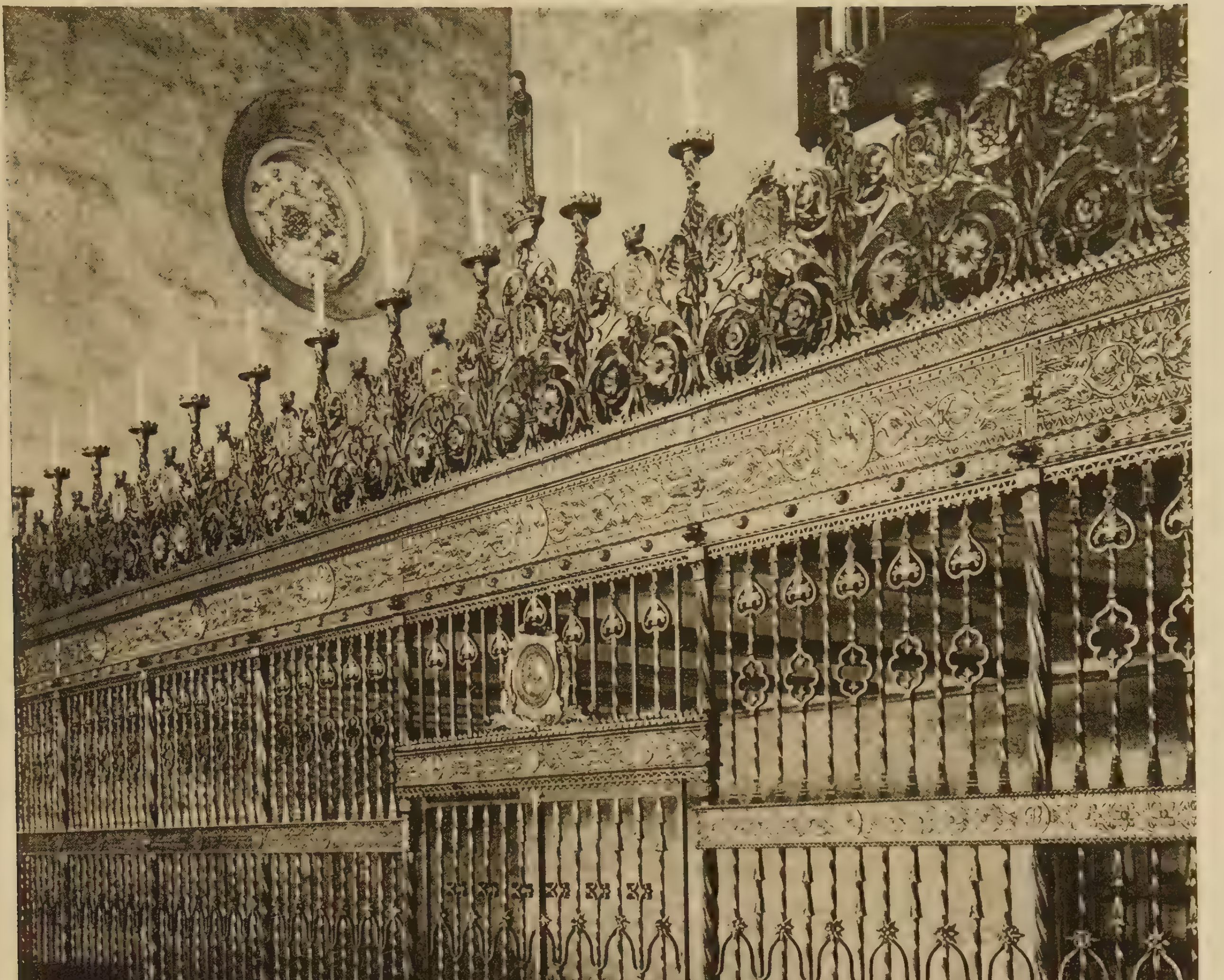
This grille is unusually rich in repoussé ornament. It covers the entire frieze, the horizontal band below, and the transom bar over the gates. The seal of the Diocese of Brooklyn, surrounded by mystic roses and a wreath, above the gate, is also in repoussé. Cartouches bearing emblems in repoussé are interspersed among the scroll forms of the crowning member. Upon the reverse side of this screen, under the balcony, the horizontal band is similarly ornamented, the Seal of the seminary appears above the gates, and the transom bar bears a memorial inscription, all in repoussé. It is clean, vibrant work, full of variety and life. Though there is repetition in the symbols and motifs, no two bits of this work are alike, for the free strokes of the worker always vary. Most important of all is the figure symbolic of the Immaculate Conception, which surmounts the grille at its centre. This figure in the round is also of repoussé work, hammered out of the iron in two pieces which were welded together at the sides. It is admirably designed and beautifully executed.

Though the skilled craftsman can work iron in repoussé with great facility, this is not an easy art to learn or to practise. In working such flat bands of ornament as are shown upon this grille, the outlines are first incised by working from the front. This warps the work out of all semblance to flatness. The ornament is then modelled in relief by hammering from the back while the work rests upon a lead block which acts as a cushion. This still further buckles the sheet. Finally the sunken portions of the design are worked from the front in such a way that the stresses are relieved and the work is brought to a true plane.

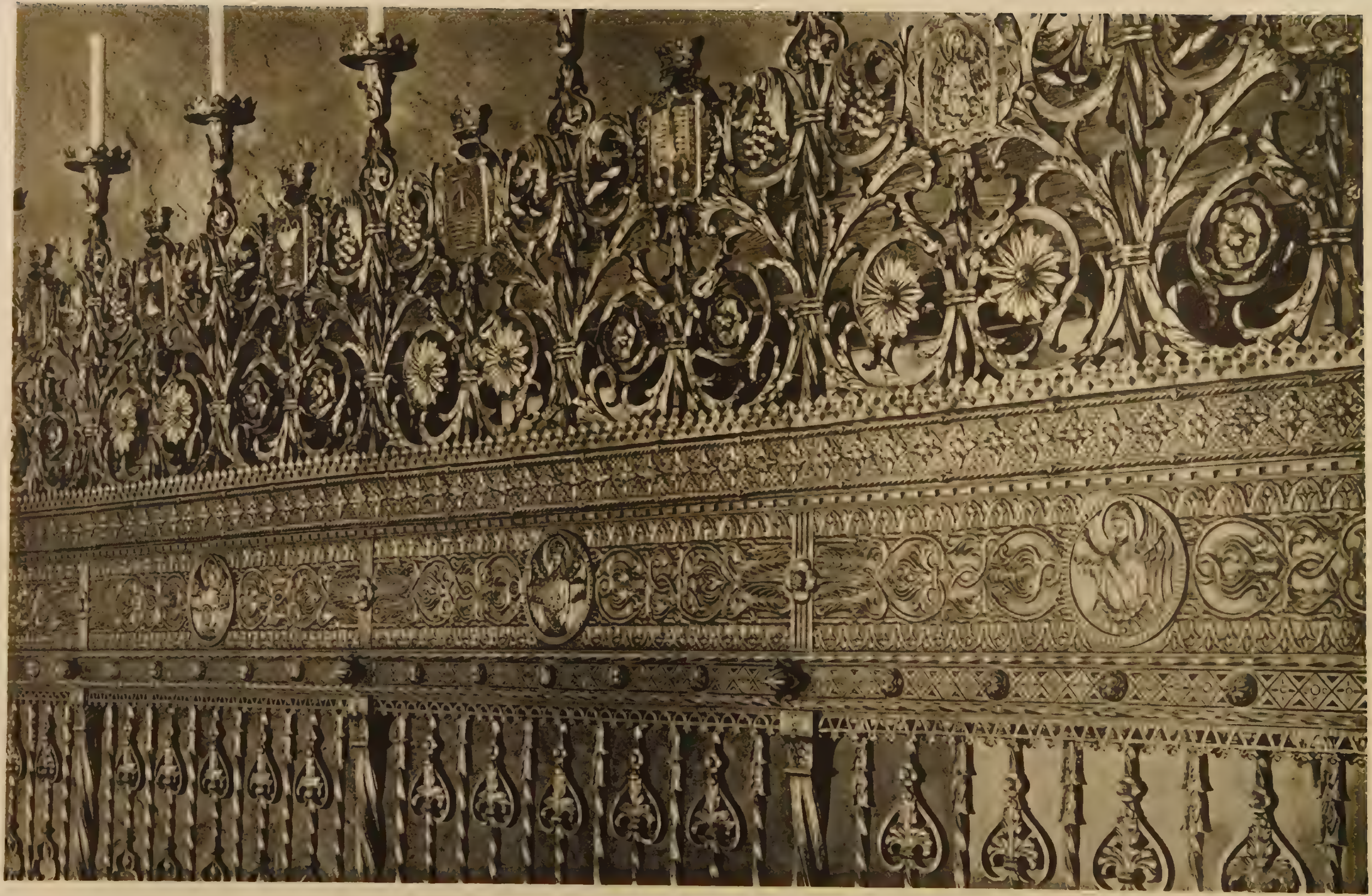
There is a wealth of hand-forged leaf-hammering in this grille, particularly upon the scrolls in the crowning member, which is all welded together. The heavier forgings of the posts and ornamented vertical bars display hand craftsmanship quite as interesting as that of the repoussé work or the leaf-hammering.

There are ten twisted posts, forged from bars of wrought iron two inches square, which extend from the base to the top of the grille proper. Highlights play upon the edges of the twists and graded shadows lie in the depressions, lending life and interest.

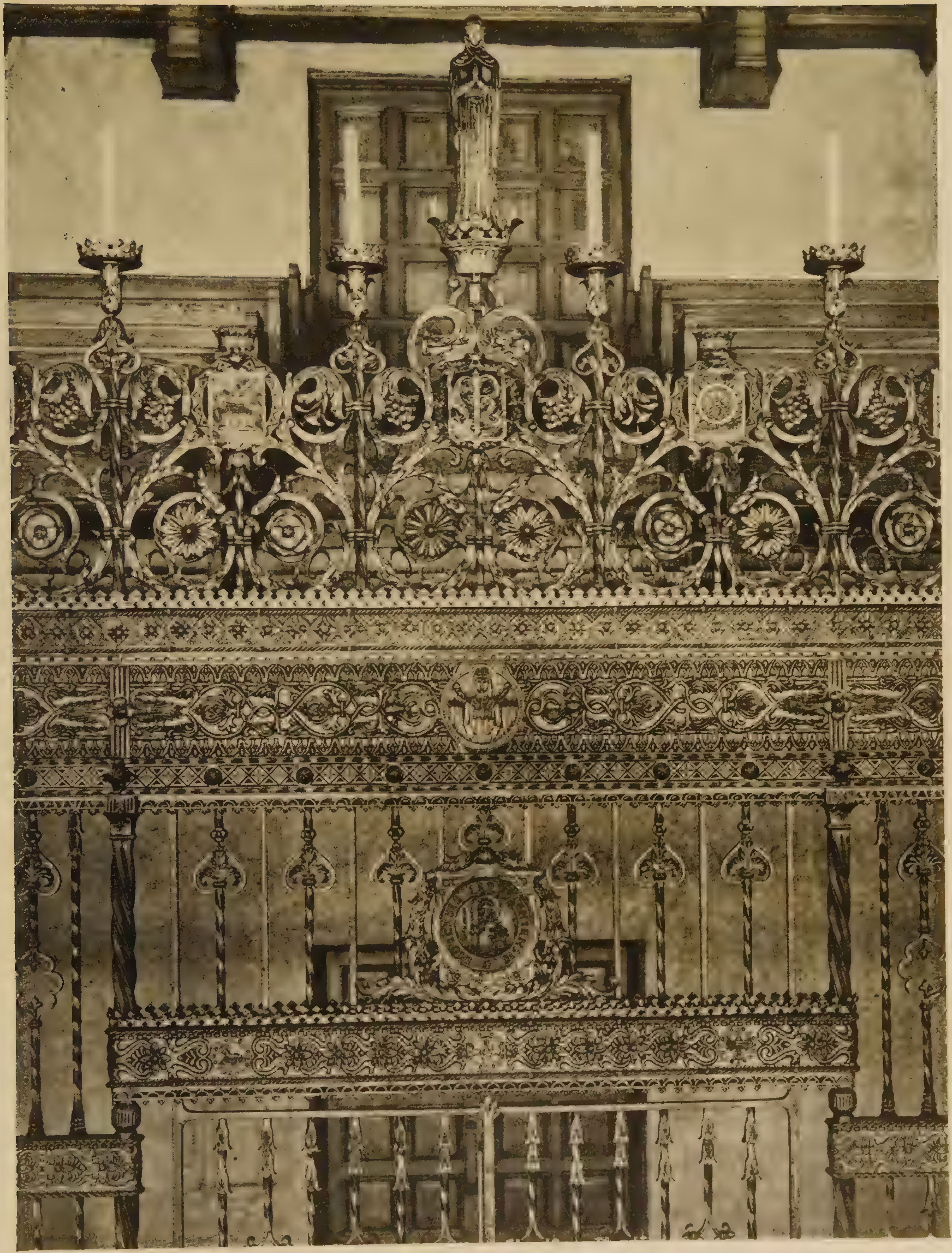
Before the bars were twisted the corners



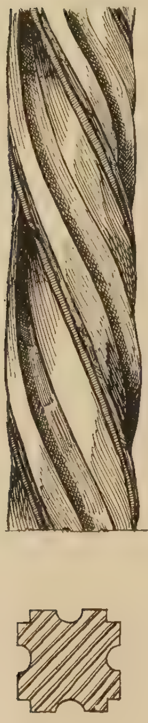
Note the vigorous structural lines—the main posts of two-inch square twisted bars—and the ingenious masking of the balcony floor by the repoussé frieze. Bracing between the verticals has been achieved without the use of too obvious horizontals



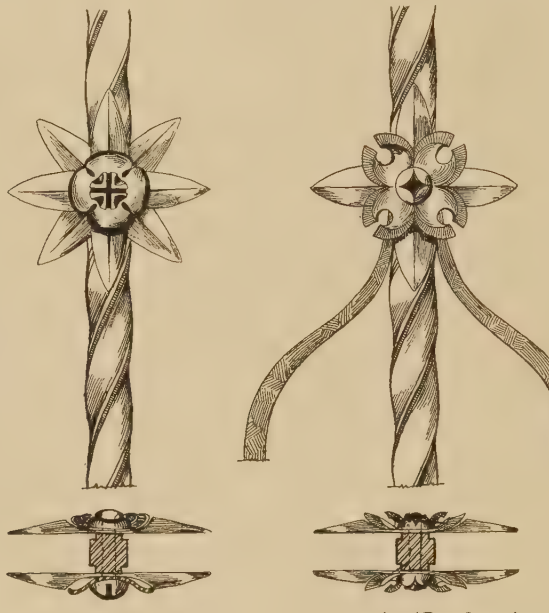
Detail of frieze and cresting. It might be expected that, for the sake of easier construction the cresting would be independent, secured to the balcony edge, but pride in craftsmanship necessitated the running through of the two-inch bars as continuous iron



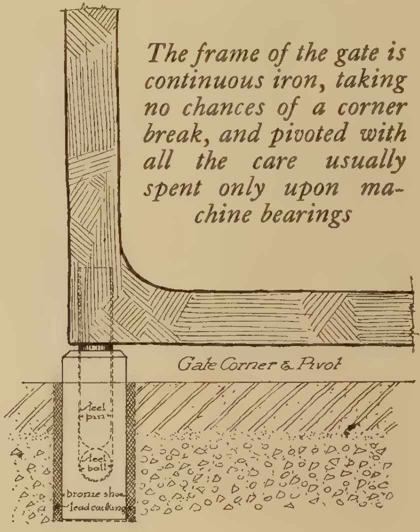
Detail of the central motives. The figure representing the Immaculate Conception is hammered in repoussé out of two pieces, and beautifully welded at the sides were ground off and a V-shaped sinkage was made with a chisel in each corner throughout its length; also a half-round sinkage was made in the centre of each of the four faces of each bar, a fuller being used while the iron was in a red-hot state. Then about a foot and a half of the bar was heated at a time, to a little more than red heat, and twisted. During the twisting one end of the bar was held firmly in a heavy vise while four men exerted their strength upon the two long arms of a great wrench. This requires force, but even greater delicacy, in order that the twist may flow smoothly.



At left, elevation and section of the main two-inch posts



At left, details of the applied rosettes, secured by bosses on a through bolt



The frame of the gate is continuous iron, taking no chances of a corner break, and pivoted with all the care usually spent only upon machine bearings

The vertical bars between the posts were forged from iron heavy enough for the thickest part, which is at the base, and the bars were elsewhere hammered down to smaller size. The ornament is all hand-forged and welded together, including the leaves which are welded into the bars.

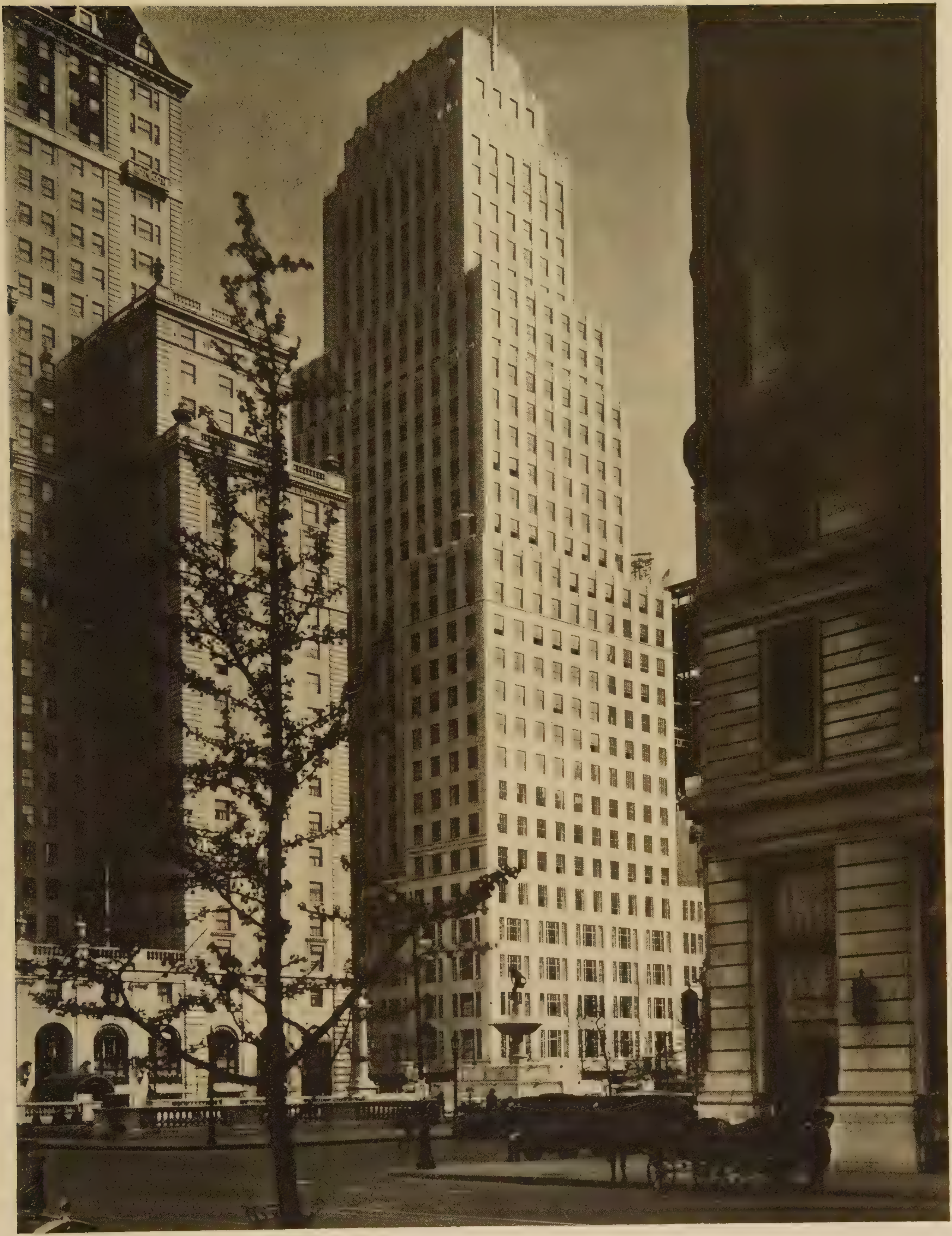
At some distance below the horizontal dividing band is a wave line of branches that spring from alternate bars and terminate at the intermediate bars. They are welded at both of their ends and serve further to stiffen the grille without obstructing the view and without destroying the lightness of effect or injuring the composition of the grille, as a horizontal member would at this place.

Where these branches meet are star-like ornaments of leaf hammering, both upon the face and the reverse of the grille. The manner in which these are attached is an especially good example of thoroughness in the smaller details of hand craftsmanship, as is shown by the drawing.

The construction of the gates is a notable example of sound craftsmanship, since the frame of each gate was forged in a single piece from bars thickened at the ends by upsetting, to provide additional material in the corners where the greatest strength is needed. Because of this rigid construction it was possible to use meeting stiles only one-half the thickness of the hanging stiles, with an astragal on each, giving the frames the appearance of uniform thickness all around and avoiding a double width of iron where the gates meet. This is shown by the photograph, p. 141; above is the pivot, resting upon a steel ball in a bronze socket in the floor, reducing friction to a minimum. It will be noted that parts made of different metals are placed in contact, for they move upon each other more easily than parts of the same metal.

The photographs reproduced herewith convey a clearer idea than could any description of the beauty and spirited character of this present-day hand craftsmanship in wrought iron.

In the April issue the Diocesan Seminary itself will be illustrated by means of plans and photographs

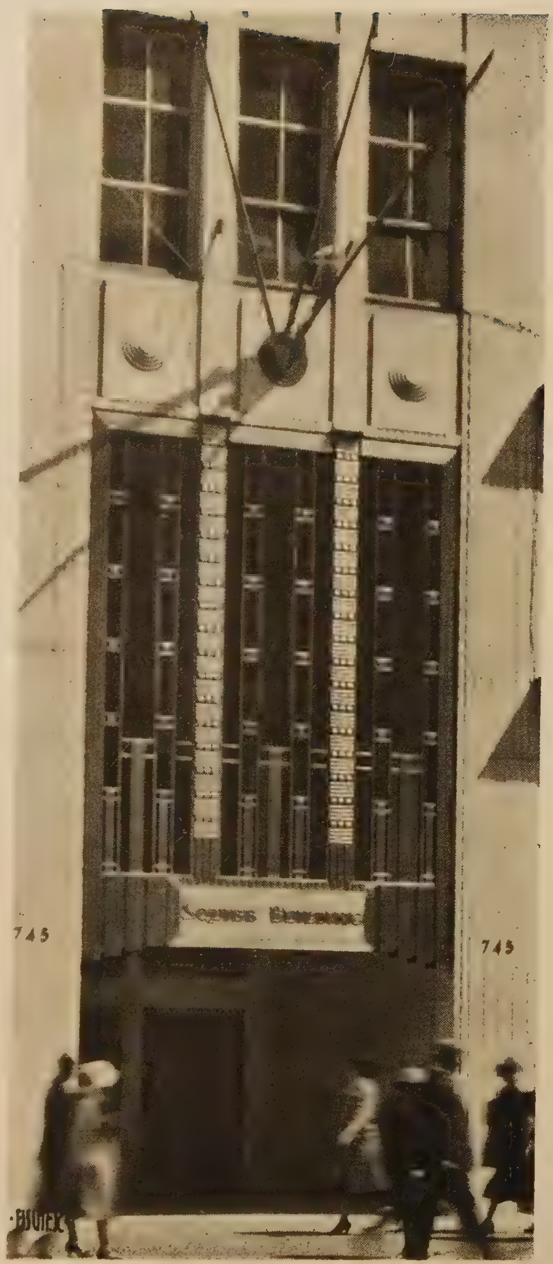


Photograph by Browning Studios

The building is of white marble at the base and of white glazed brick and terra-cotta above

THE SQUIBB BUILDING, FIFTH AVENUE AT 58TH STREET, NEW YORK CITY

THE FIRM OF ELY JACQUES KAHN, ARCHITECTS

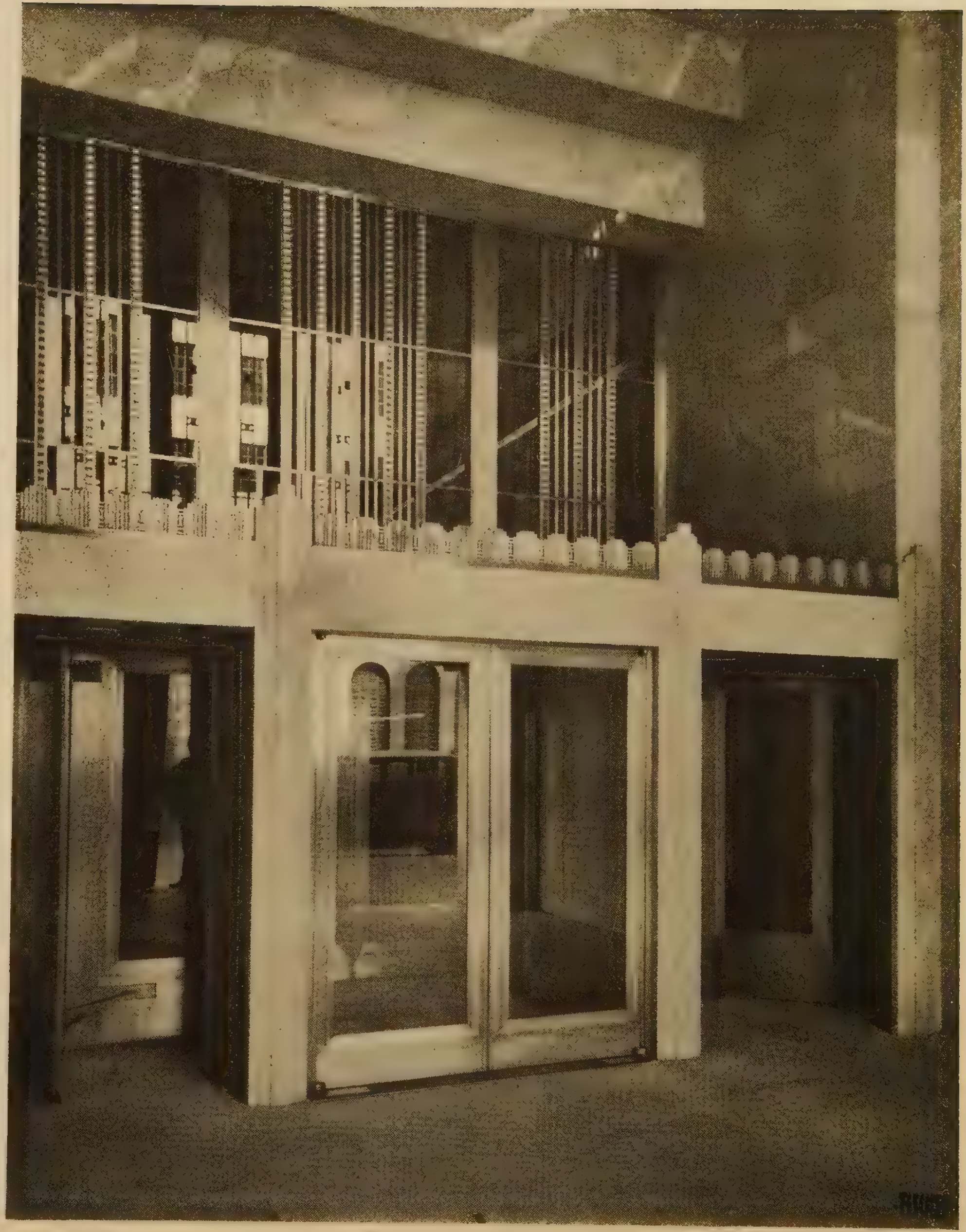


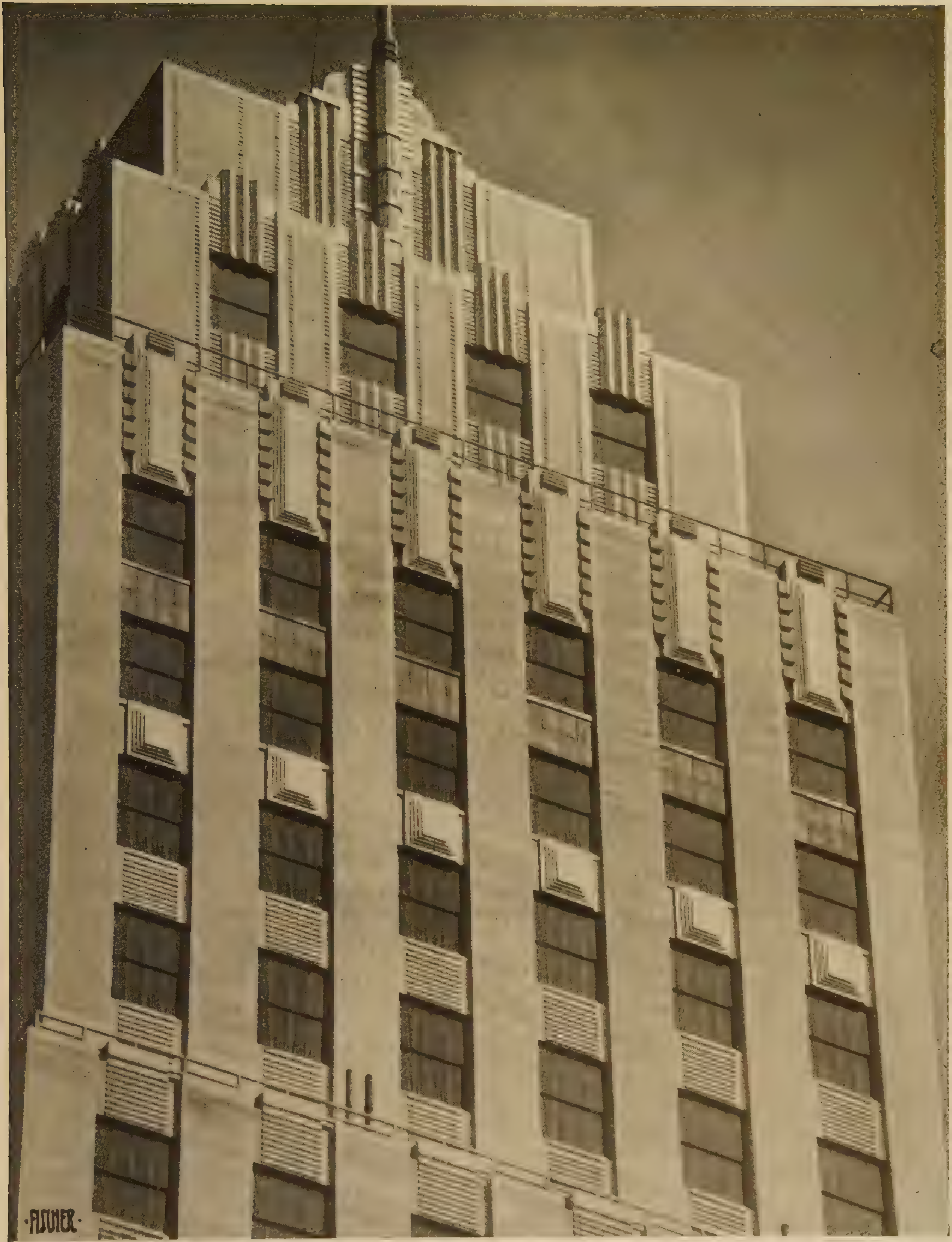
Photographs by
Sigurd Fischer

Details of entrance
in marble and
bronze

THE
SQUIBB
BUILDING,
NEW YORK CITY

THE FIRM OF
ELY JACQUES
KAHN,
ARCHITECTS

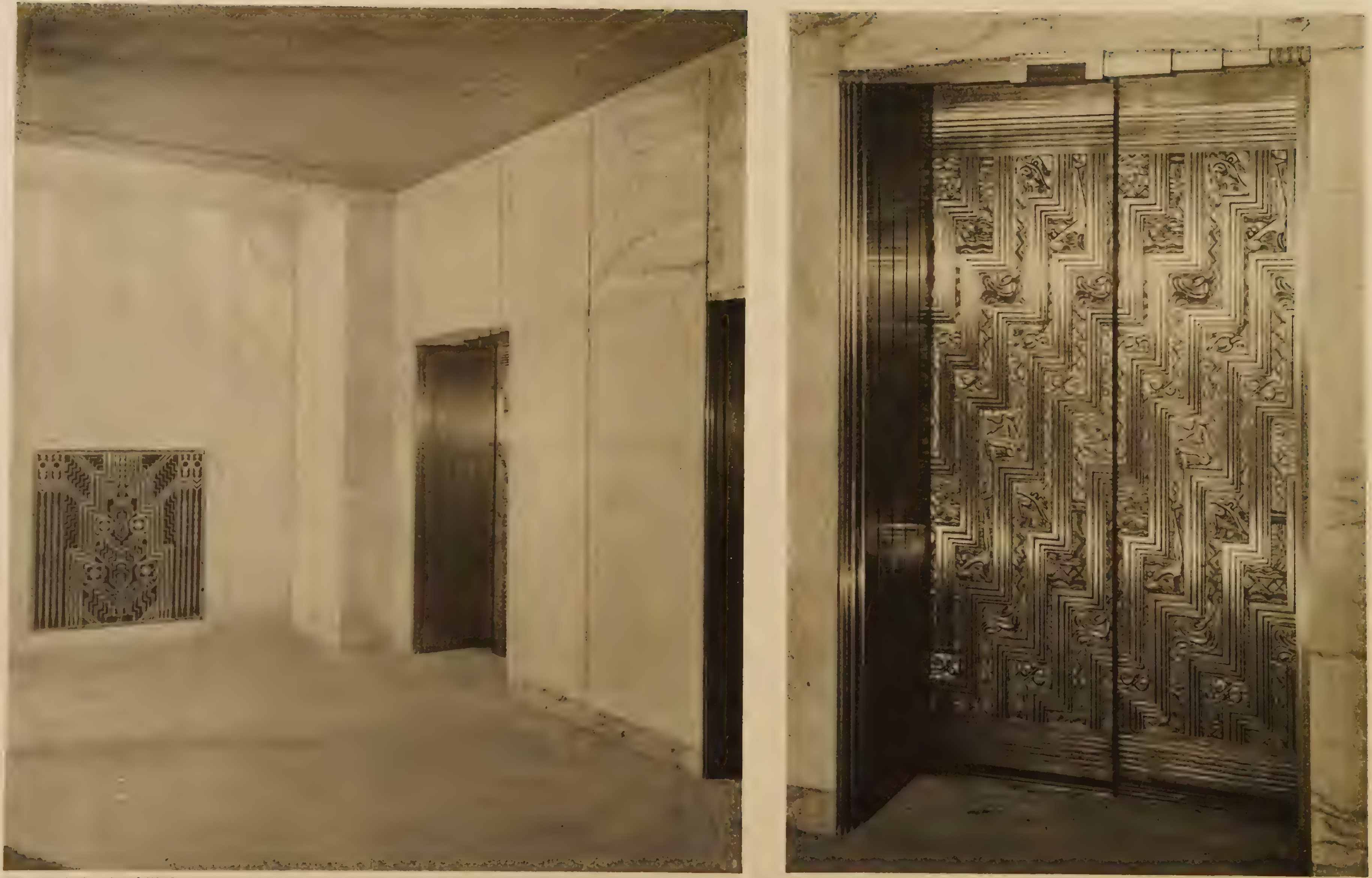




Photograph by Sigurd Fischer

Detail of top stories

THE SQUIBB BUILDING, NEW YORK CITY THE FIRM OF ELY JACQUES KAHN, ARCHITECTS

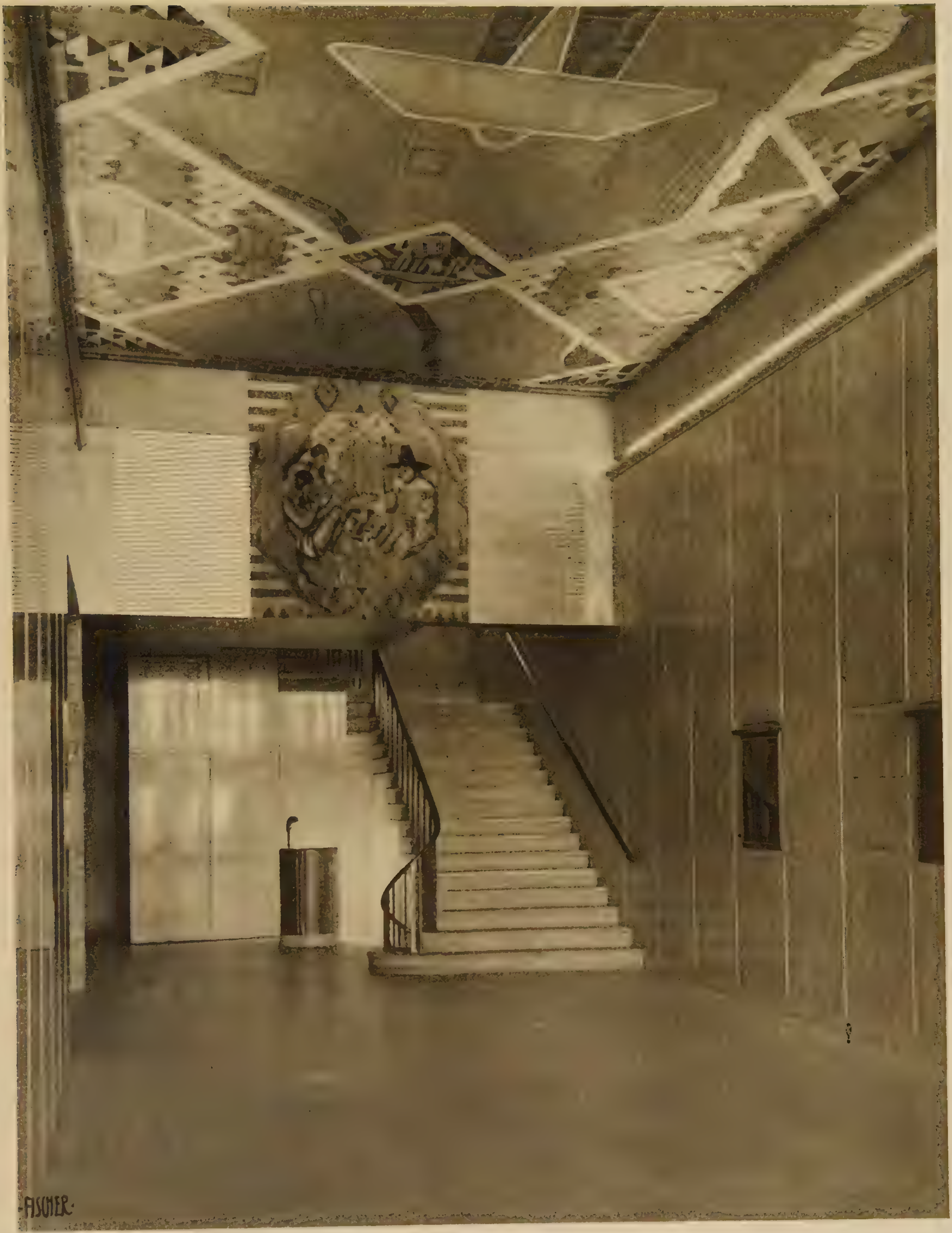


Photographs by Sigurd Fischer

Details of elevator lobby, bronze grille, and bronze elevator doors

THE SQUIBB BUILDING, NEW YORK CITY

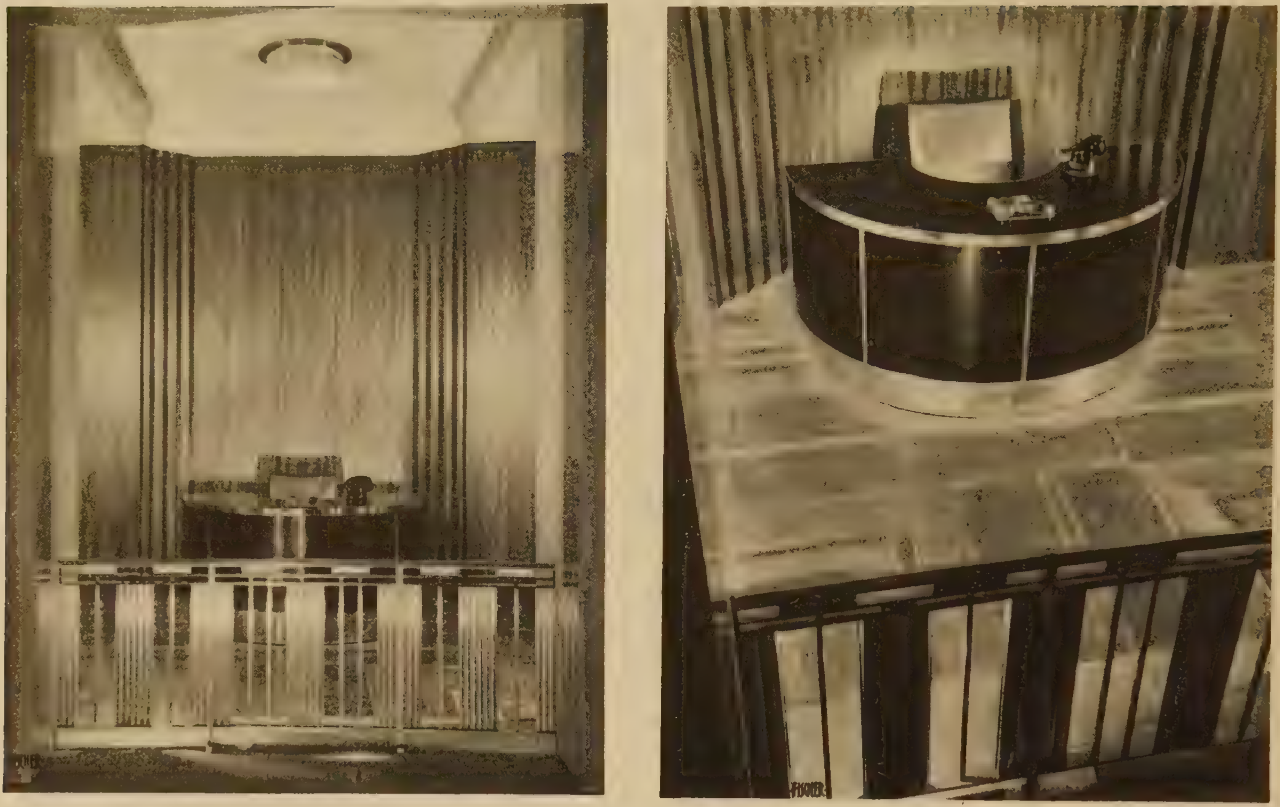
THE FIRM OF ELY JACQUES KAHN, ARCHITECTS



Photograph by Sigurd Fischer

Main lobby. The ceiling decoration is by Arthur Covey

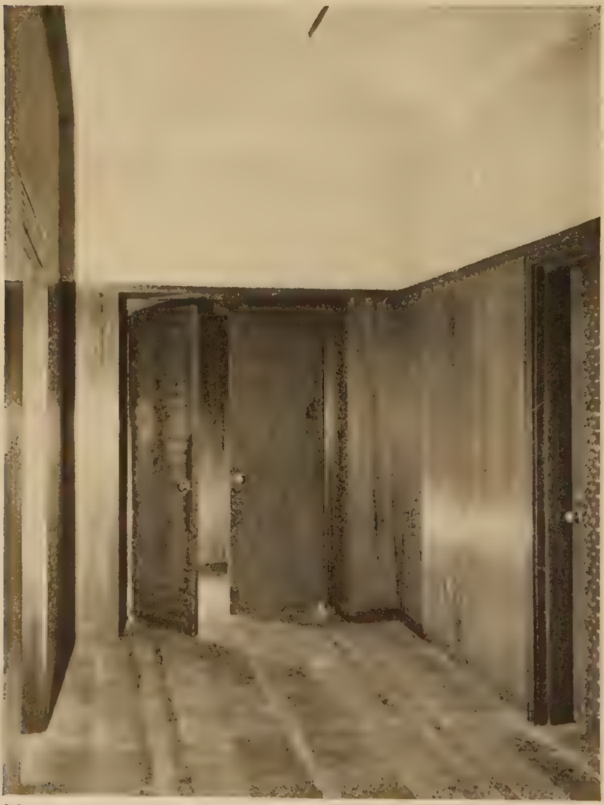
The Squibb Building, New York City THE FIRM OF ELY JACQUES KAHN, ARCHITECTS



Photographs by Sigurd Fischer

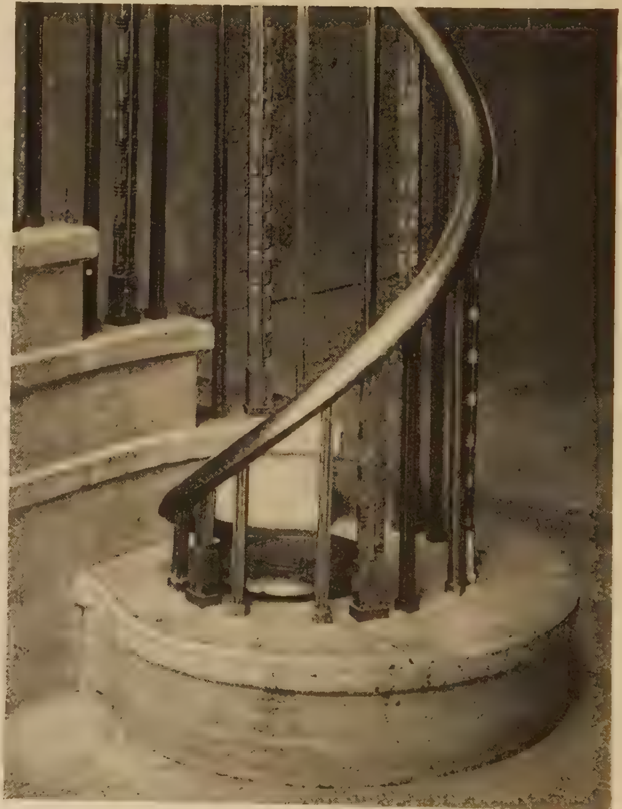
Reception-room, Squibb offices

Detail of a corridor



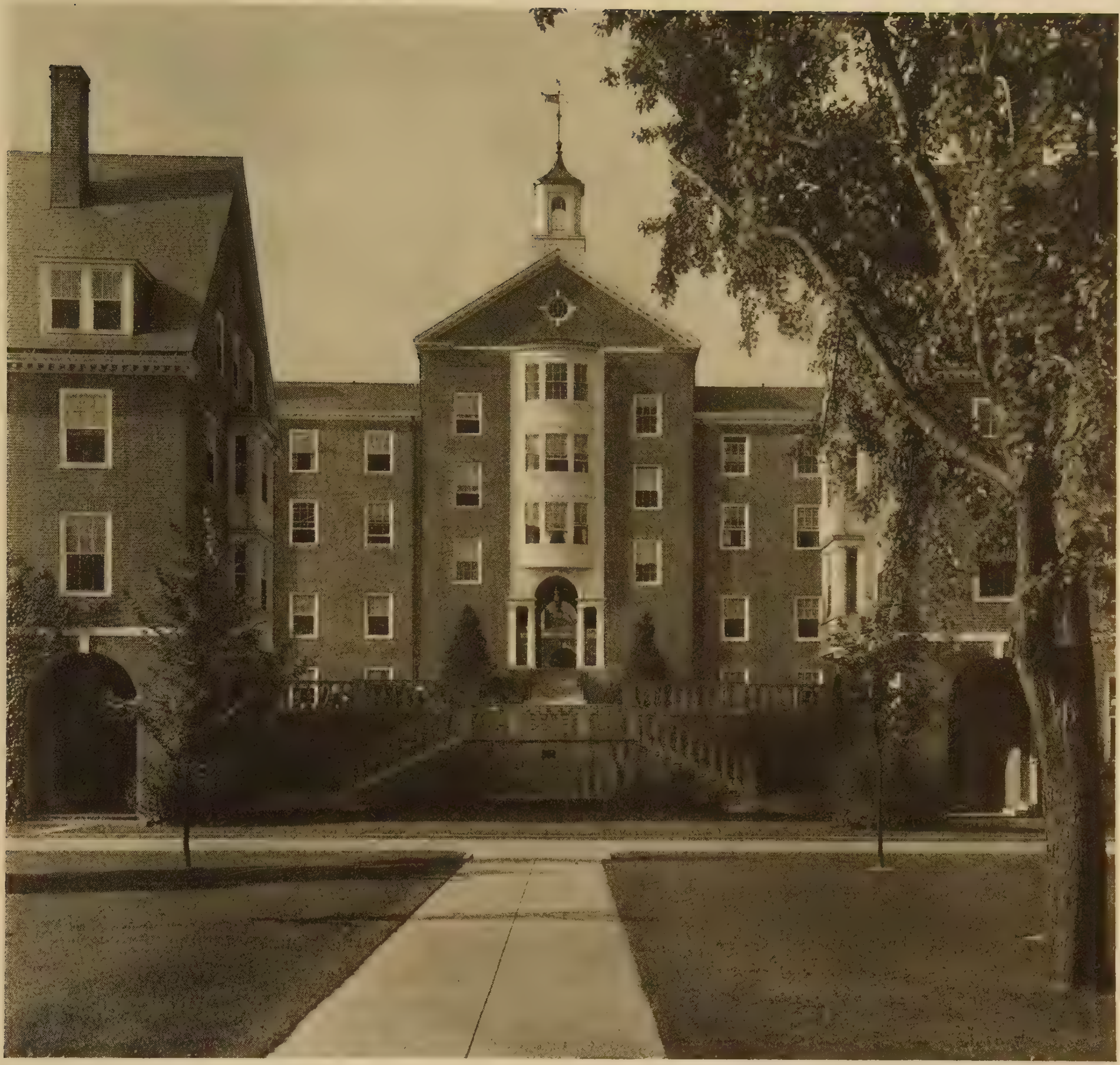
Photograph by Sigurd Fischer

Newel in main lobby

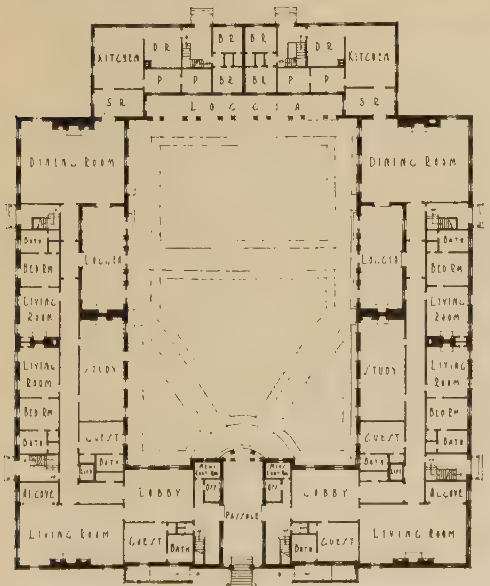


Photograph by Frank Ehrenford

THE SQUIBB BUILDING, NEW YORK CITY. THE FIRM OF ELY JACQUES KAHN, ARCHITECTS

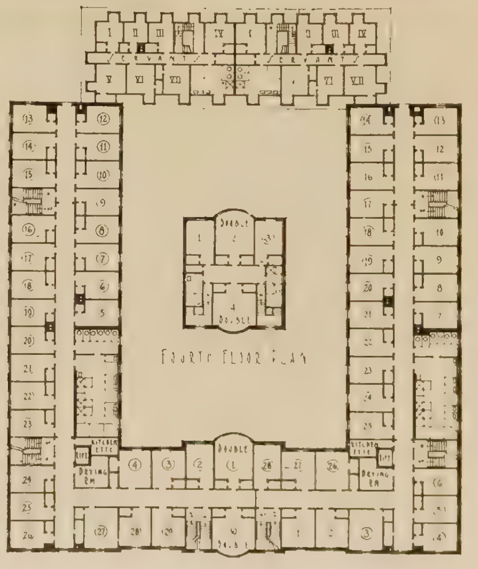


Photographs by
Richard Averill Smith



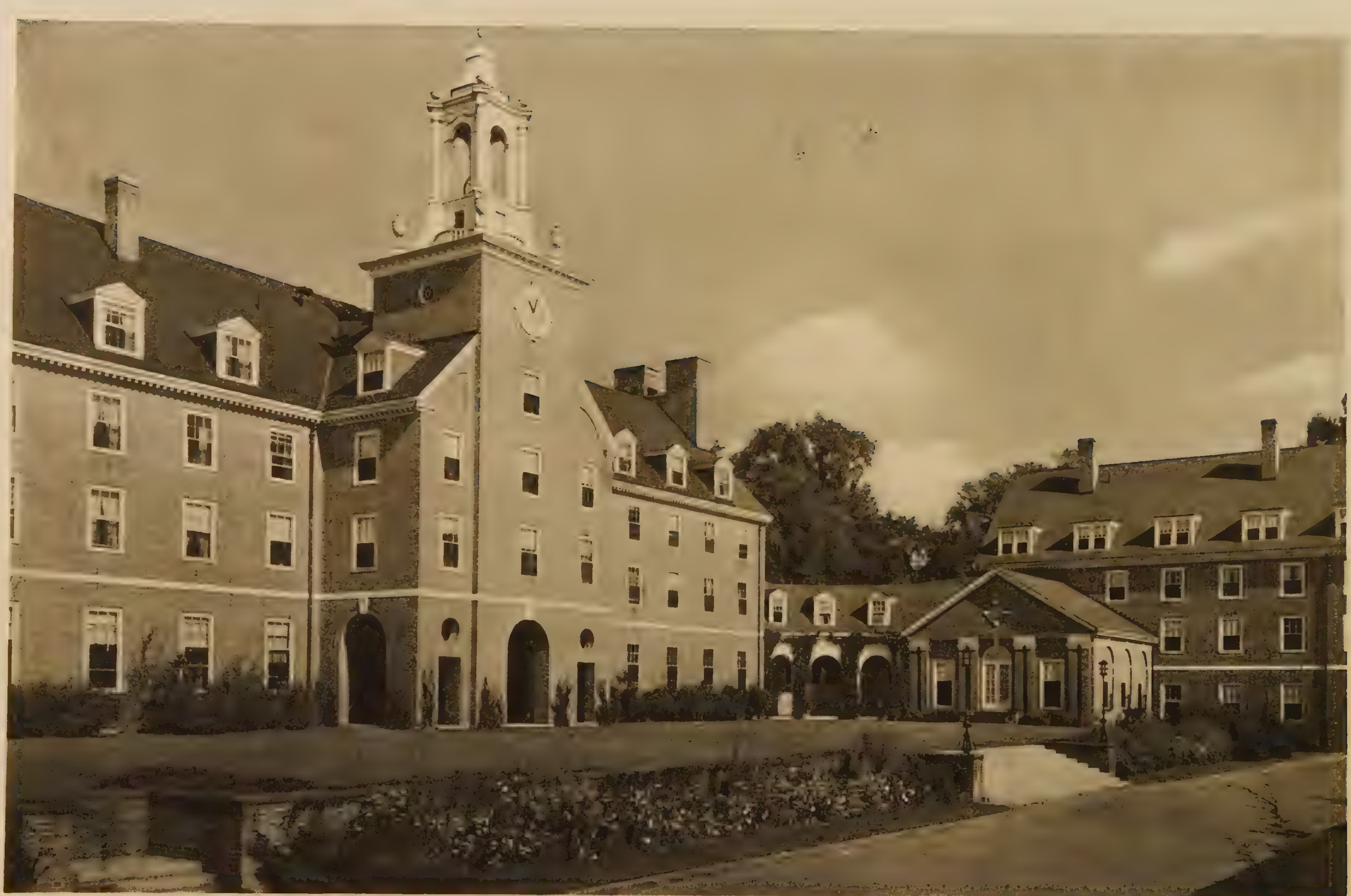
First-floor plan

Second-floor plan with
fourth-floor plan
in centre



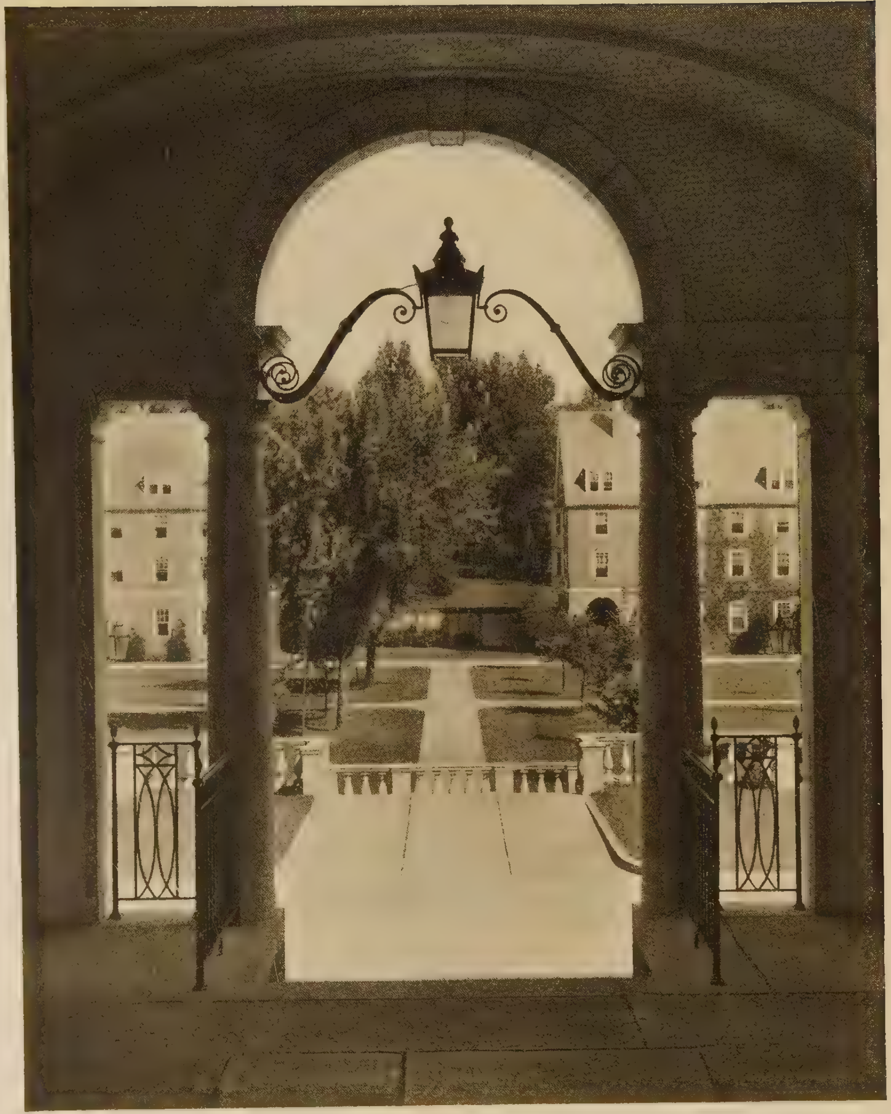
MANDELL
QUADRANGLE OF
DORMITORIES,
SMITH COLLEGE,
NORTHAMPTON,
MASS.

J. W. AMES & E. S.
DODGE,
ARCHITECTS

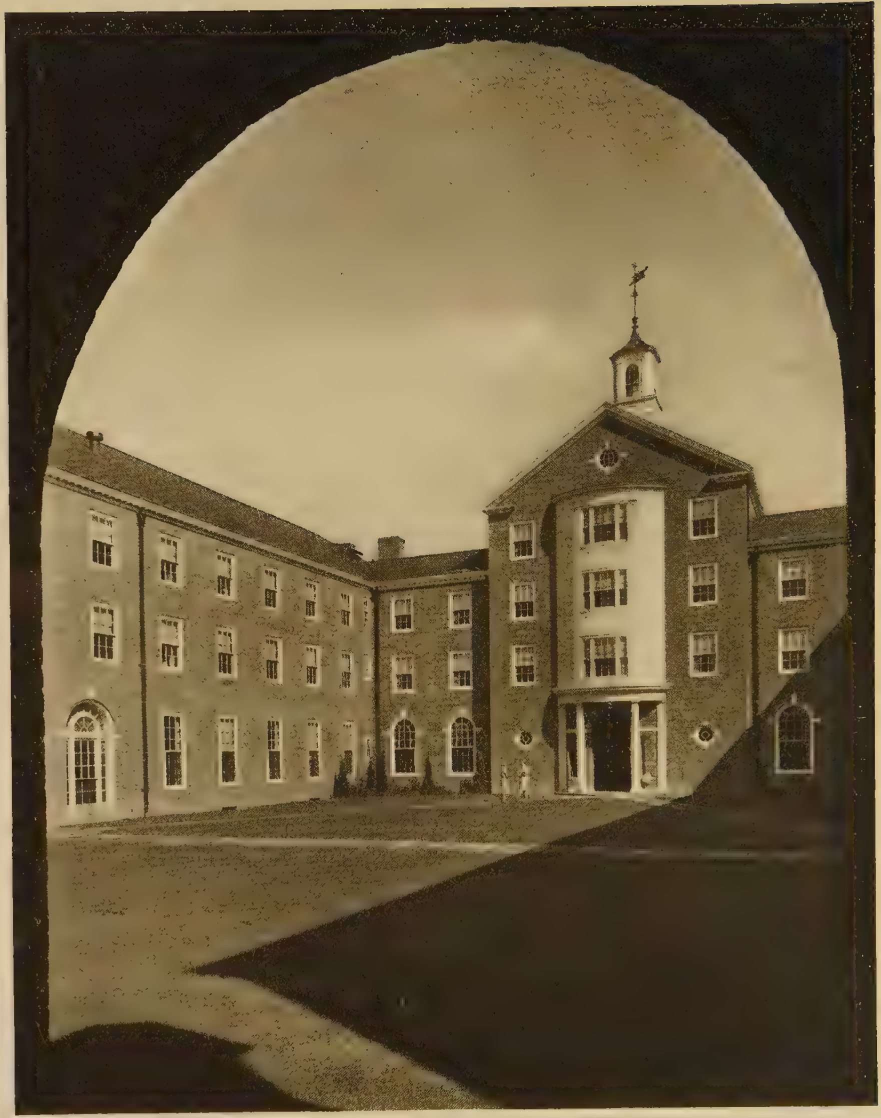


Martha Wilson Dormitory, Smith College, Northampton, Mass.

J. W. Ames & E. S. Dodge, Architects



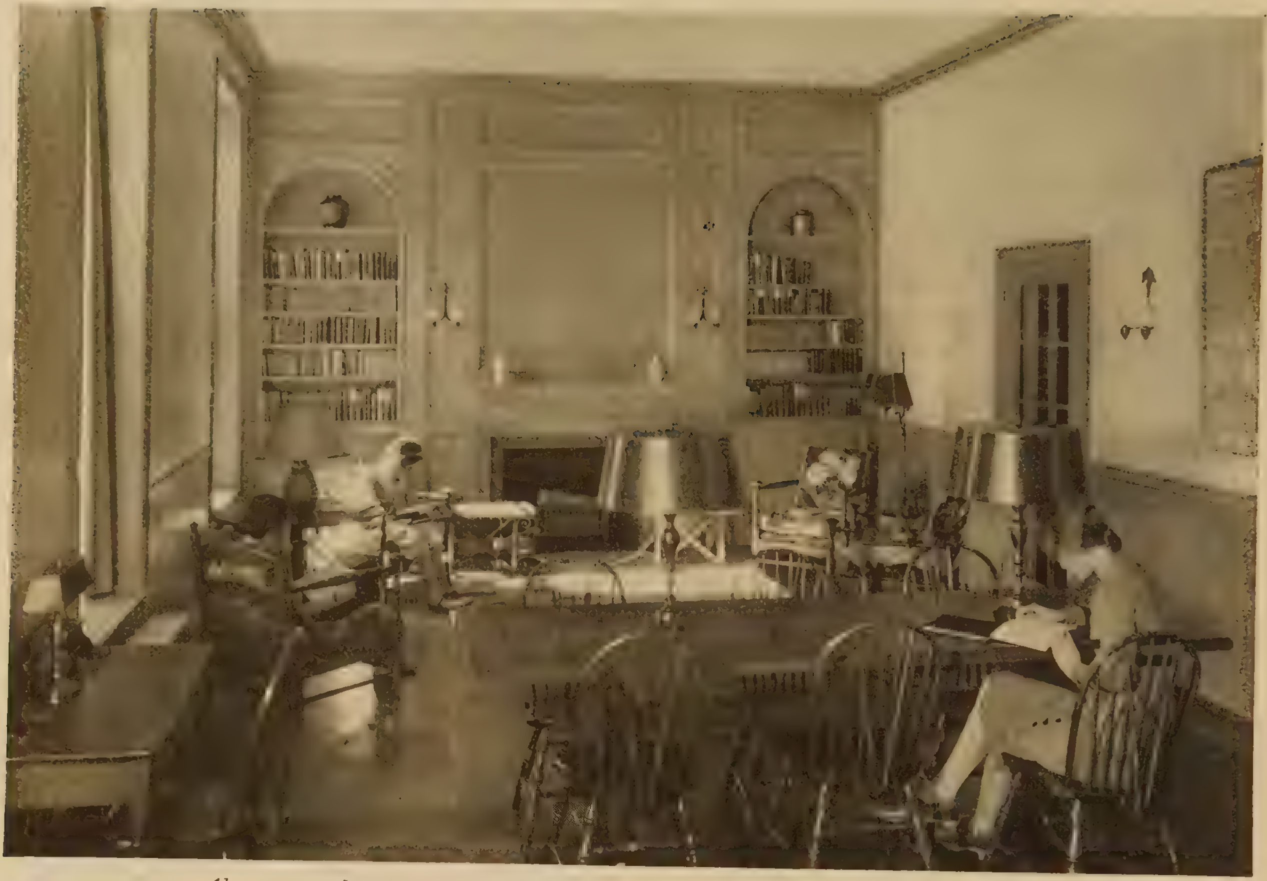
Looking down across the Memorial Steps of the larger quadrangle from the Mandell Group



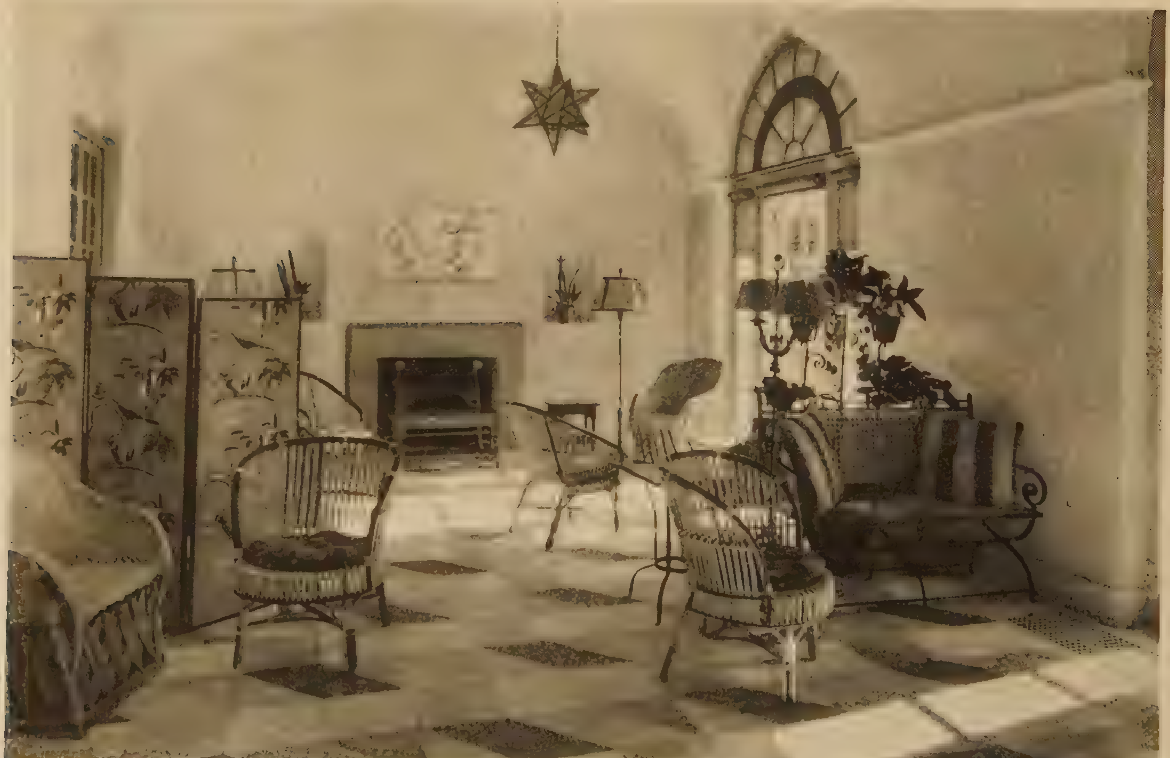
The inside of the Mandell Quadrangle as seen from the loggia shown at the top of the plan on page 149

Mandell Quadrangle of Dormitories, Smith College, Northampton, Mass.

J. W. AMES & E. S. DODGE, ARCHITECTS



Above, a study room; below, the sun parlor. Coggeshall & Jukes, decorators



MANDELL QUADRANGLE OF DORMITORIES, SMITH COLLEGE, NORTHAMPTON, MASS.
J. W. AMES & E. S. DODGE, ARCHITECTS

The Liturgical Requirements of Churches

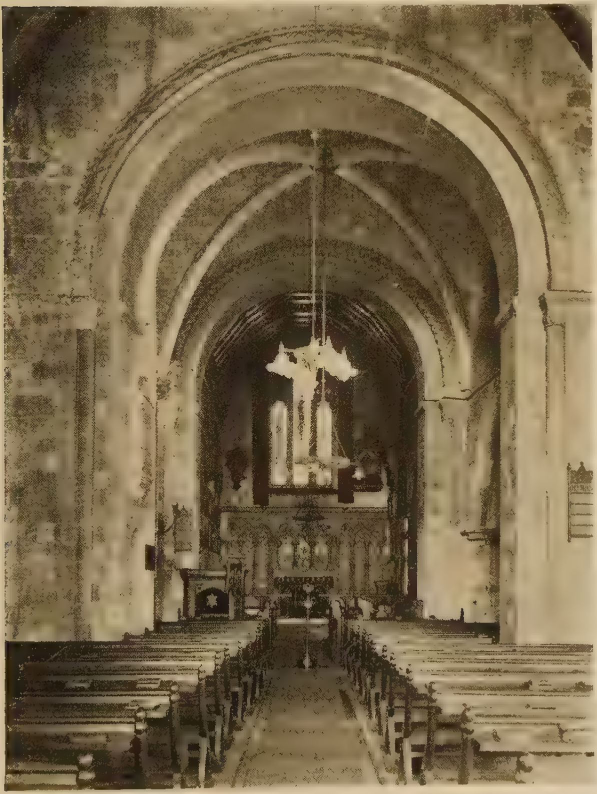
III. THE CHANCEL, *CONTINUED*

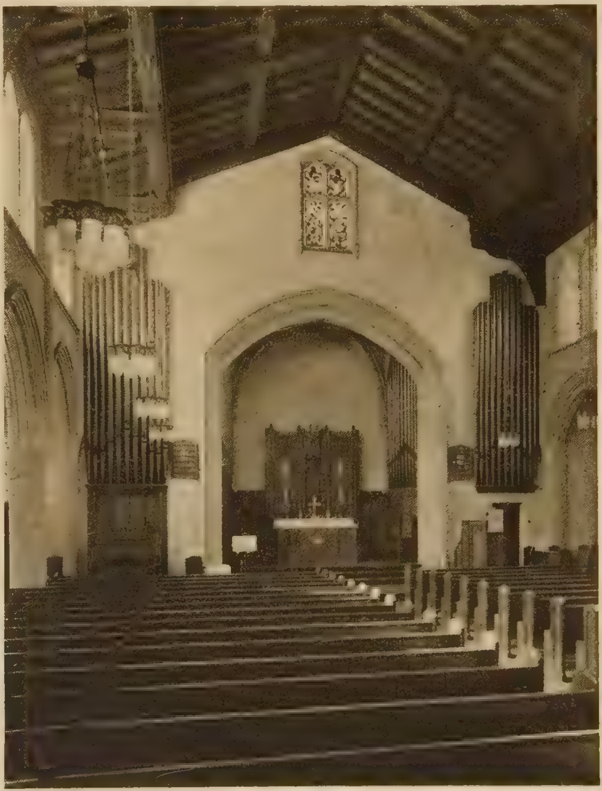
By F. R. Webber

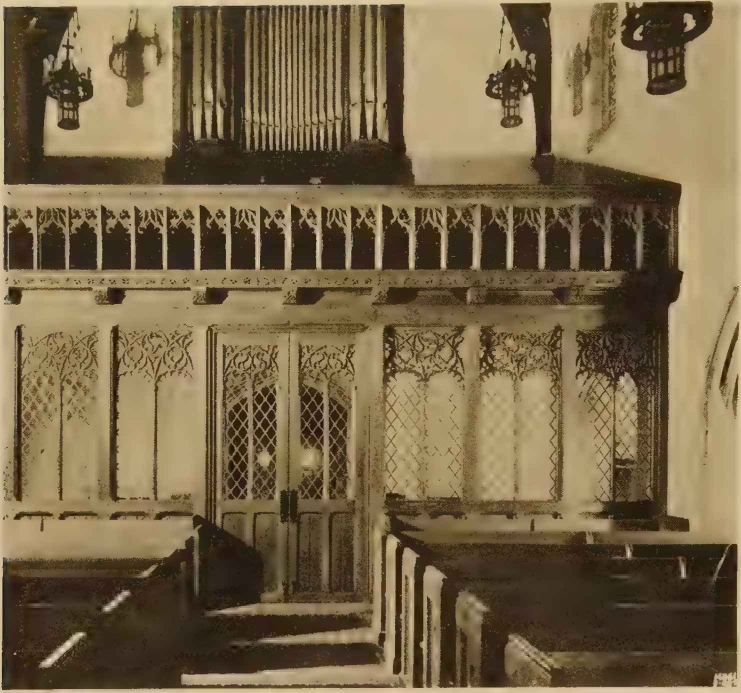
YEARS ago even the liturgical churches placed their choirs in the west gallery. Liturgically speaking, this arrangement was good, because every liturgical service is built up on the idea of an antiphonal musical dialogue between priest and people. In the strictly liturgical churches the choir is looked upon not as a group of entertainers singing *to* the congregation, but as a trained group singing *with* the congregation, and leading them in the responses and chants. In the days of the old west gallery, with its organ and choir, the music was a background for the congregational singing.

Then came the day of non-liturgical anthems and solo work. The choir lost its liturgical character, and became a group of entertainers, the congregation sitting back critically, as though at a concert.

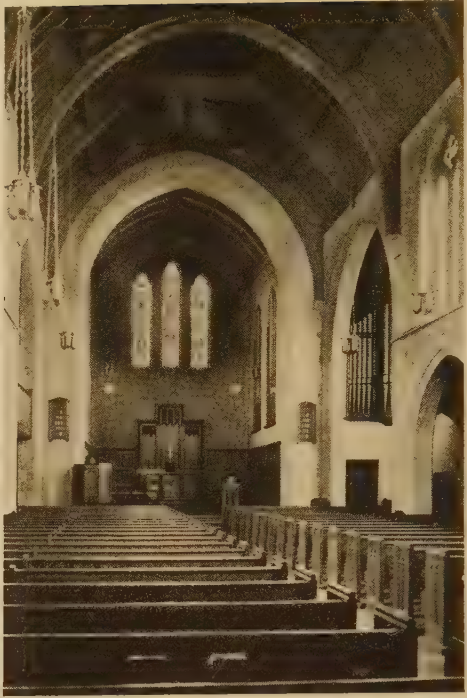
All of this had a profound influence upon the planning of the church. Organ and choir were moved from the west gallery to the east end of the church. In some instances they were placed upon a conspicuous platform in a corner of the nave, where the showy organ pipes and the choir formed the real centre of interest. The Episcopalians solved the problem in an early day by vesting their choirs in the traditional cassock and cotta, and placing them in stalls on the lowest chancel level. Lutherans tried the experiment of a triple chancel arch, with the organ and choir in a space to the north of the altar, and the baptistery in a corresponding space to the south of it. Later they began to adopt the idea of choir stalls in the lower part of the chancel. The German Lutherans of the Middle West still cling conservatively to the west gallery position. Within the past few years many Presbyterian, Methodist, Baptist, and Congregational churches have


In the great majority of the smaller churches of England, as at Old Saint James's, Dover, the choir is elevated a step or two, giving a fine feeling of scale


In Concordia Lutheran Church, Akron, Ohio—Fichter & Brooker, architects—the choir is in the south transept on the level of the nave



In Trinity Evangelical Lutheran Church, Pittsburgh, Pa.—Corbusier, Lensk & Foster, architects—the organ and choir are placed in the west gallery, following the traditions of France and Germany, and using the space under the gallery for a narthex



In St. Luke's Evangelical Lutheran Church, New York—Edward L. Tilton, architect—the choir stalls are at the ends of the side aisles

vested their choirs in cassocks and surplices, and have provided stalls in the chancel. And gradually the idea is becoming recognized by all denominations that the choir is not a group of entertainers, to add spice to the service, but that there are age-old liturgical principles which cannot be violated with impunity. These principles are based upon the idea that a church service is not made up of preaching and hymn-singing, with a few musical novelties by the choir. It is composed of the exposition of the Word of God, the celebration of the Sacraments, and the worship of the congregation by means of a responsive service in which the clergyman, the congregation, and the choir take part.

* * *

These changes have led to a radical change in church planning. In most of our newer churches the west gallery is obsolete. The preaching-platform, with an organ and choir back of it, is a thing of the past. The true chancel has come back again, with adequate provisions for a dignified service, even in the case of a very small congregation using a simple order of service, and having a single, unassisted clergyman, an altar, a font, a small organ, and a small group of singers.

The Church of Our Saviour, Baltimore, is one of the finest small churches of recent years —Frohman, Robb & Little, architects. The nave is 22′ by 60′, inside dimensions, plus two side aisles 10′ 6″ wide. The chancel is 20′ wide by 31′ 3″ deep. The sanctuary is 15′ 4″ deep, and the choir space is 16′ in depth from the edge of the upper entrance step to the edge of the communicants' step. The organ is located in what would normally be the north choir aisle. The layout is almost ideal for a small church.

Where a larger choir must be provided for, a deeper chancel will be required. The chancel of St. Mark's, Mt. Kisco, is about 20′ wide by 39′ deep. About 40 singers may be seated. St. Mary's, Walkerville, Ontario, has a chancel 21′ 6″ wide by 34′ 6″ deep, 39″ of which is taken up by an ambulatory back of the altar.

Our American chancels are usually too crowded. A width of 20′ to 22′ is usually sufficient. The sanctuary ought to be at least 15′ to 16′ deep where there are three steps at the altar, and slightly shallower if the altar is raised but one step above the sanctuary floor. The depth of the choir space ought to be at least 20′ for an average choir, for this will permit ample space for communicants to assemble before the rail. In the case of a large church, these dimensions will have to be increased.

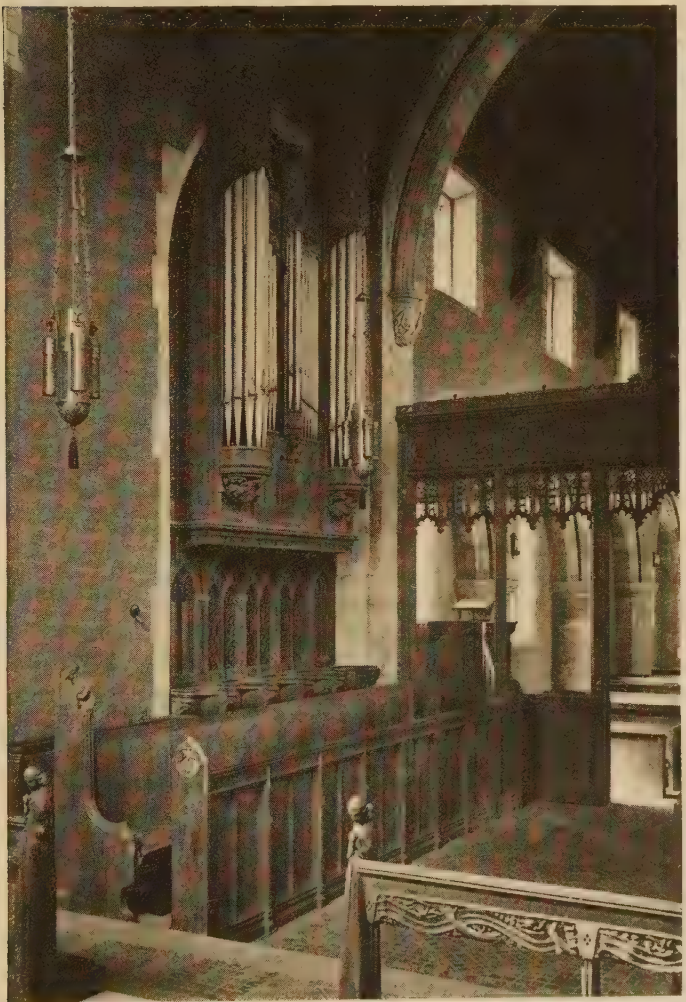
The chancel of St. Thomas's, New York, is 54′ deep, and might have been even deeper had the available ground space been larger.

In England one seldom sees an altar perched too high above the floor. Sometimes we go to extremes in this respect. It is always well to keep at least the choir space close to the nave floor. There are many churches in England whose choir is but a step or two above the floor of the nave. In America we often see choirs whose lowest stalls are five or more steps above the nave level. This tends to hide the altar. It is better to keep the level of the choir floor but a step or two above the nave in a small church, and three steps in a larger church. The second rows of stalls may be elevated a step or two above the front rows.

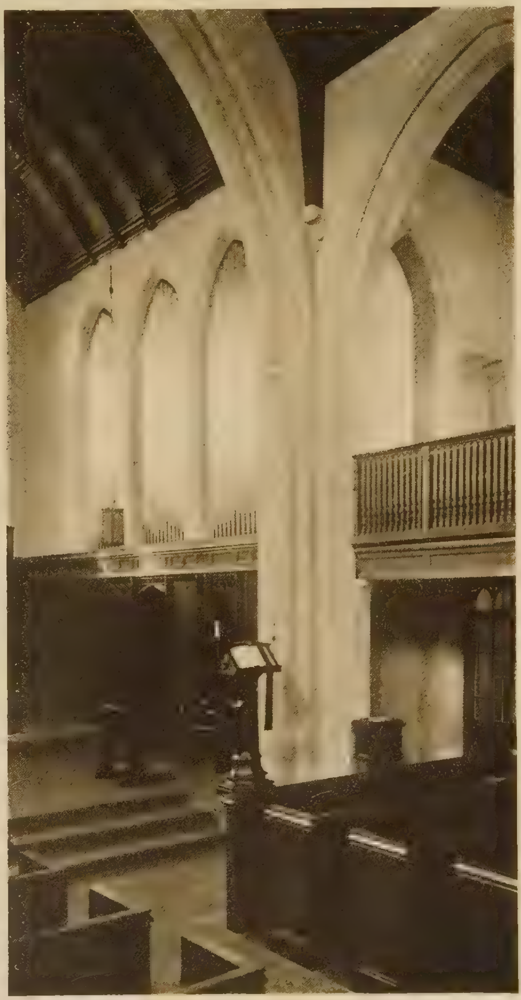
In a small chapel, the communicants' rail may be placed from 14″ to 16″ eastward of a step carried entirely across the chancel. In a larger church there may be three broad steps to the communicants' rail. In either case there ought to be exit doors at each end of this rail, if possible. These exits permit the communicants to return to their seats through the north and south choir aisles, and from thence into the nave aisles.

In Episcopal churches it is usual to provide three broad steps at the altar. In a small Lutheran church the altar usually stands upon a foot-pace that is raised but one step above the sanctuary floor. This foot-pace extends 36″ in front of the altar, and about a foot at each end. The clergyman stands upon this step throughout the liturgical parts of the service, turning toward the altar during all parts of the service that are addressed directly to the Lord, and facing westward during the parts that are an address to the congregation.

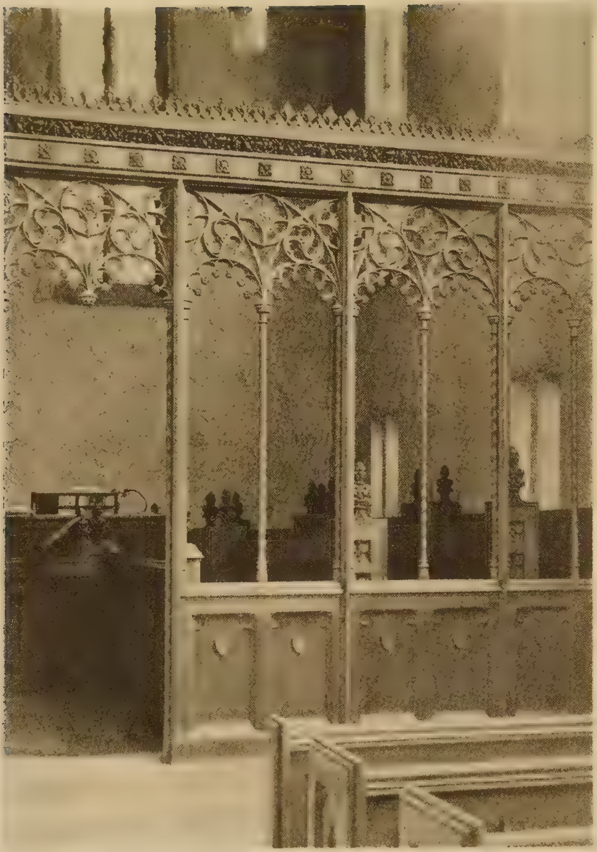
The chancel termination may be rectangu-



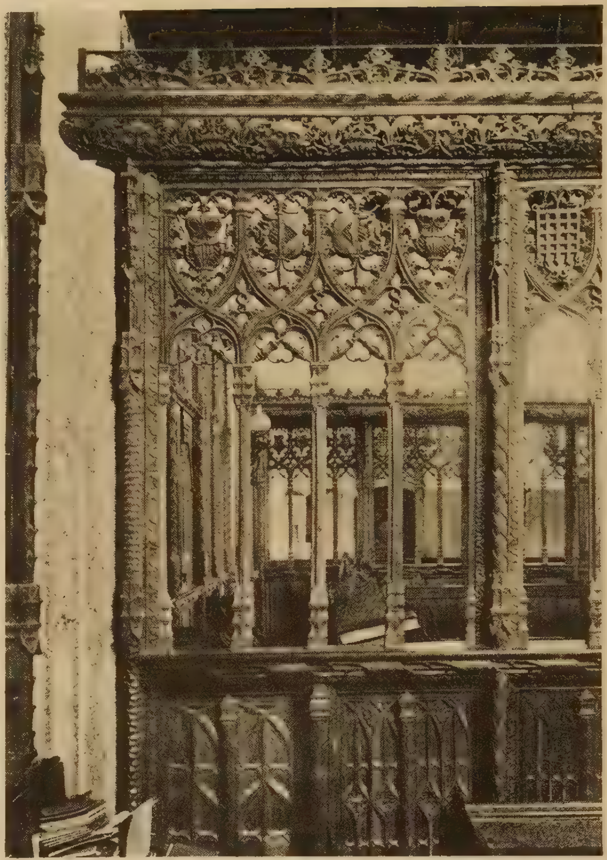
In St. Mark's Church, Mt. Kisco, N. Y.—Cram, Goodhue & Ferguson, architects—the choir stalls and organ are in the chancel



In this Lutheran church, Waynesboro, Va.—T. J. Collins & Sons, architects—the choir is above in a transeptal tower



In St. Paul's Church, Massilon, Ohio—Corbusier, Lensk & Foster, architects—the choir stalls are at the south of the chancel, with parclose screens separating these from both chancel and south transept



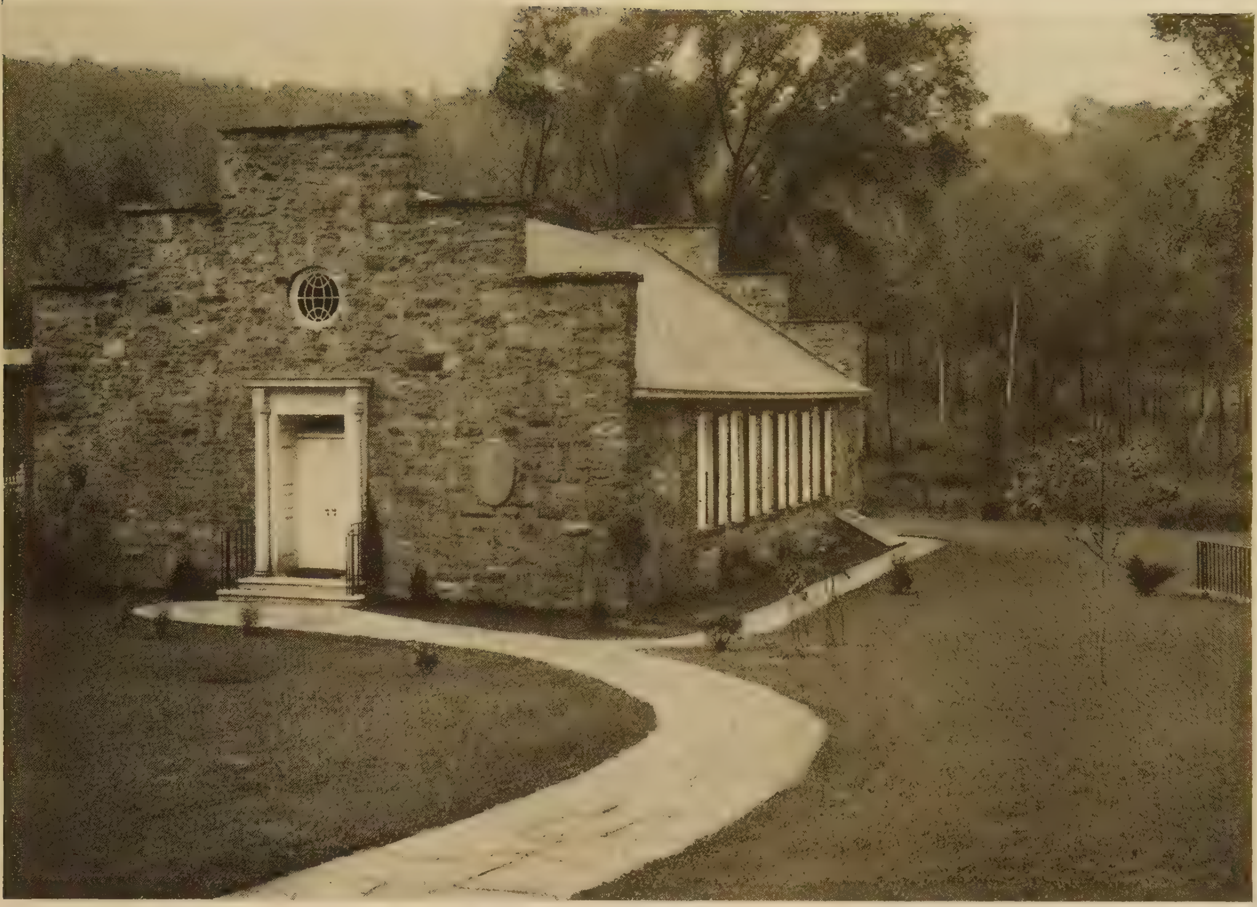
In many Devonshire churches, as at All Saints, Holbeton, organ and singers are placed in one of the broad aisles, separated from the chancel by elaborately carved screens

lar, semicircular or polygonal, depending upon the architectural style of the church. Liturgical principles do not govern this eastern termination. It is purely a matter of architectural style. The various phases of English Gothic call for the rectangular eastern termination, with the altar against the east wall, or within 2 or 3 feet of it. French Gothic usually calls for the polygonal east end. This ought to be in the form of a twelve-sided polygon cut in half, rather than half an octagon. The Romanesque style seems to demand a semicircular chancel termination, with the altar in the chord of the apse. If we are using the Norman style, then either the rectangular or else the semicircular termination may be used.

Many of the old Norman churches originally ended with a semicircular apse. Benego, Birkin, Checkendon, Copford, East Ham, Fritton, Hadleigh, Kilpeck, Little Braxted, New Haven, Nateley Scures, Steetley, Swincombe, and the White Tower Chapel are all small churches that retain their eastern semicircular termination. Adel, Barfreston, Castle Rising, Hadleigh, Iffley, Kingsclere, Old Shoreham, Old St. James at Dover, New Shoreham, Patrixbourne, Rudford, Saint-Peter's-in-the-East, Stewkeley, Studland, St. Margaret's-at-Cliffe, and Heath Chapel are a few that either originally had east ends with a rectangular termination, or were later so remodelled.

Neither the semicircular nor the polygonal apse is ideal in the case of a small church. With a rectangular east end, one may set his windows high in the gable. In the case of the apse, these windows must be set quite low, since there is no east gable. The apparent height of an interior is governed by the highest point of daylight illumination. Hence the low windows of an apse tend to dwarf the chancel of a small church. Should the building be very lofty, and the chancel deep, then the semicircular or the polygonal apse may be used with fine effect, if the architectural style of the building permits.

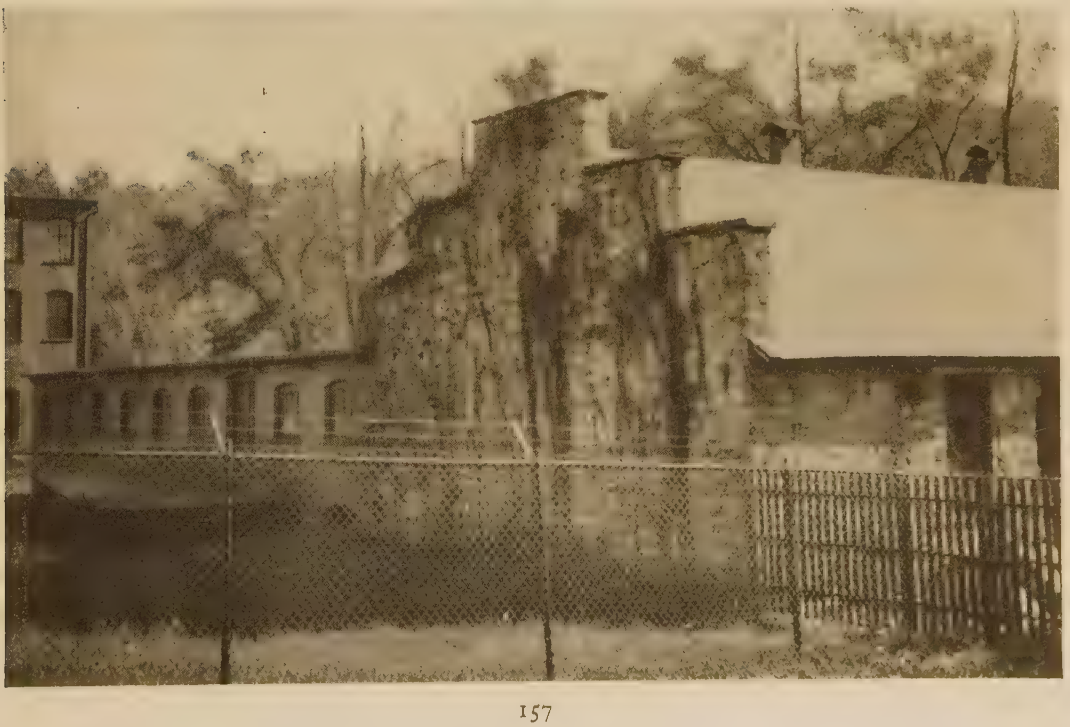
Of the liturgical significance and the arrangement of altar, reredos, credence, piscina, sedile, a communicants' rail, font, pulpit, and lectern more will be said in the next paper.

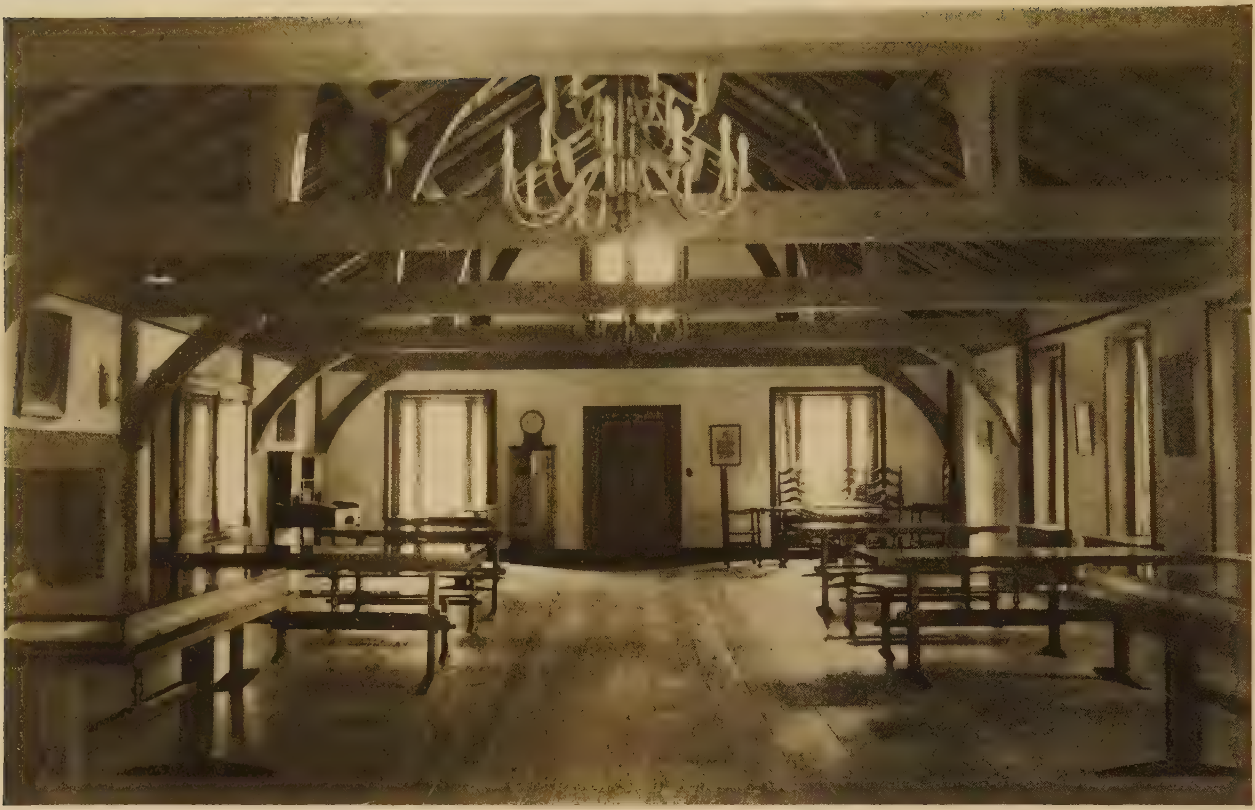


Crane Museum, Dalton, Mass.

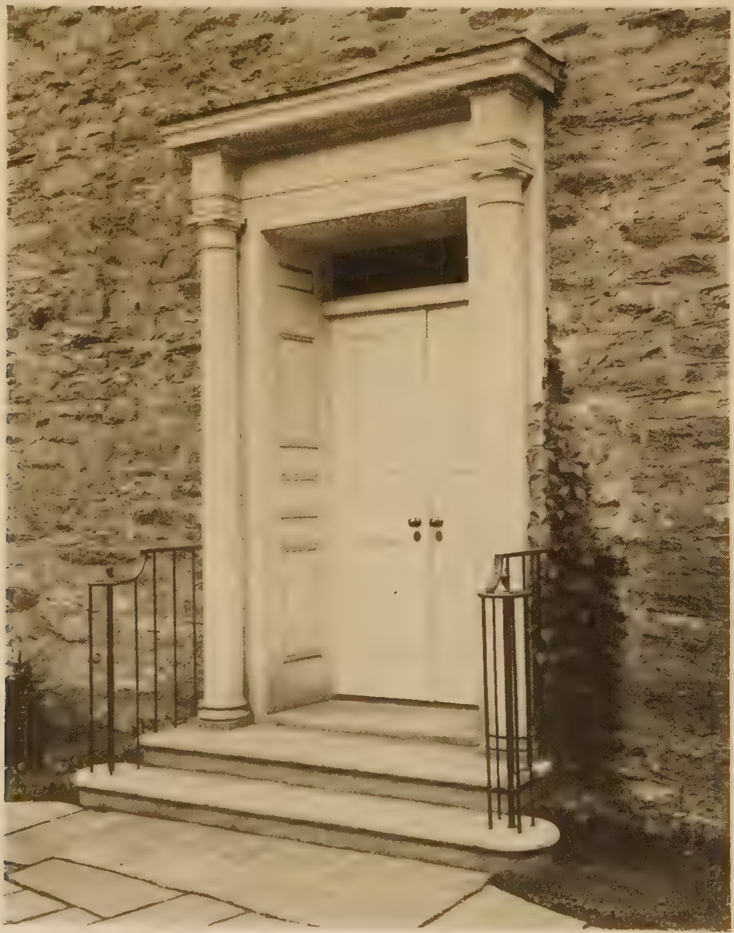
CHARLES S. KEEFE, ARCHITECT; OLMSTED BROTHERS, LANDSCAPE ARCHITECTS

The first paper mill of Crane & Company, shown in the photograph below, was established in 1801. It has recently been remodelled to serve as a museum for objects connected with the early days of paper-making in the United States



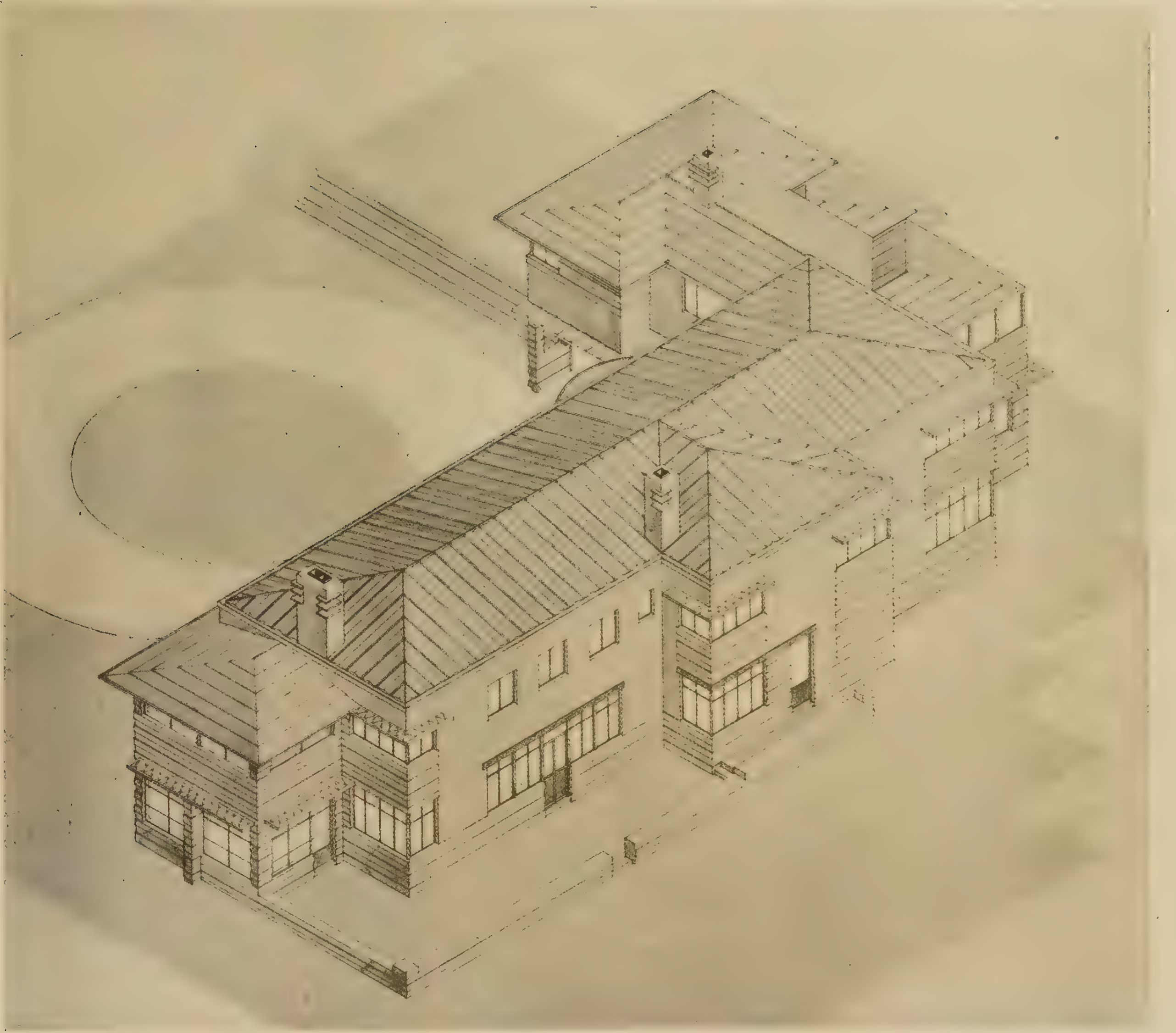


Inside the museum the oak trusses, old gray in color, following the lines of the Old Ship Meeting House at Hingham, Mass. The walls are of hand-smoothed plaster, oyster-shell white in color; floors dark oak



Crane Museum,
Dalton, Mass.

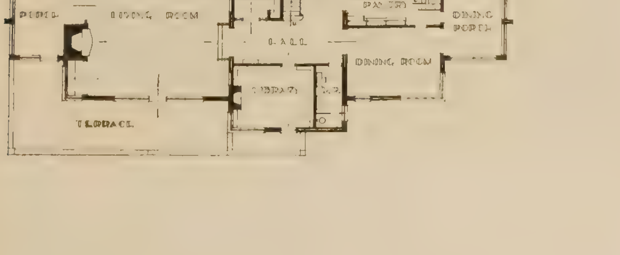
CHARLES S. KEEFE,
ARCHITECT

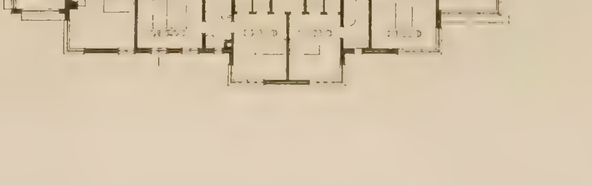


A House of To-day and To-morrow

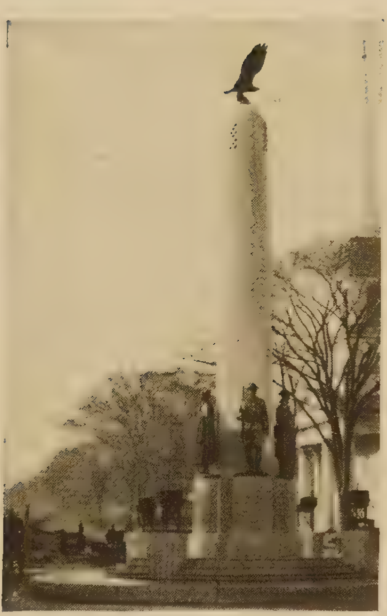
HERBERT LIPPMANN, ARCHITECT

The wall is a double one of poured concrete, in the warm buff of weathered Caen stone; horizontal lines and rustication result from movable steel forms; corners have Lally columns to which steel window frames are secured. Hoods over windows are cast with vault lights. The roof is lead coated, laid with standing seams utilized for directional emphasis. Chimneys have side vents for air space under roof

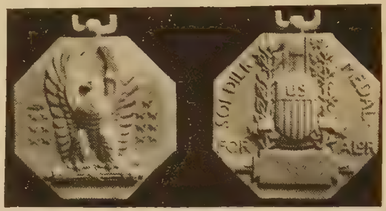




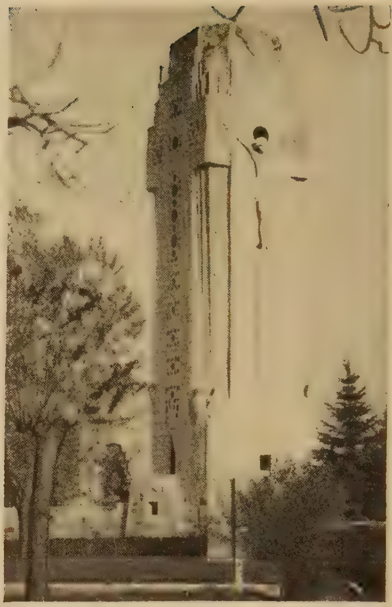
Architectural News in Photographs



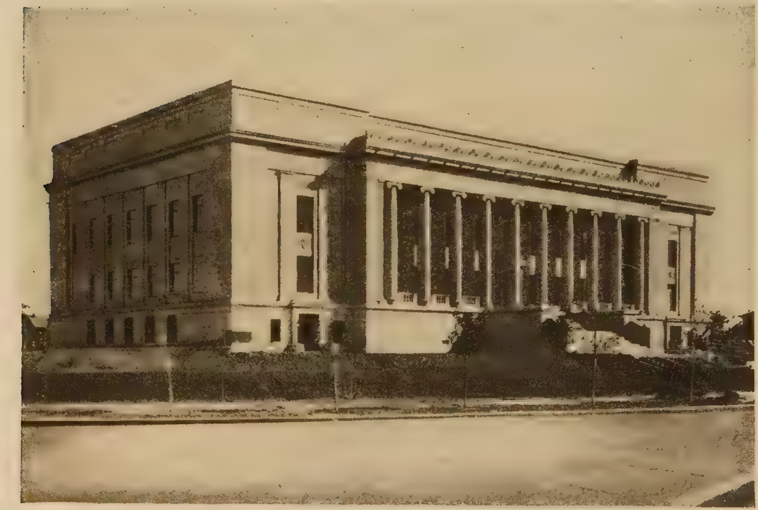
World War Memorial, Meriden, Conn. Aristide B. Cianfarani, sculptor



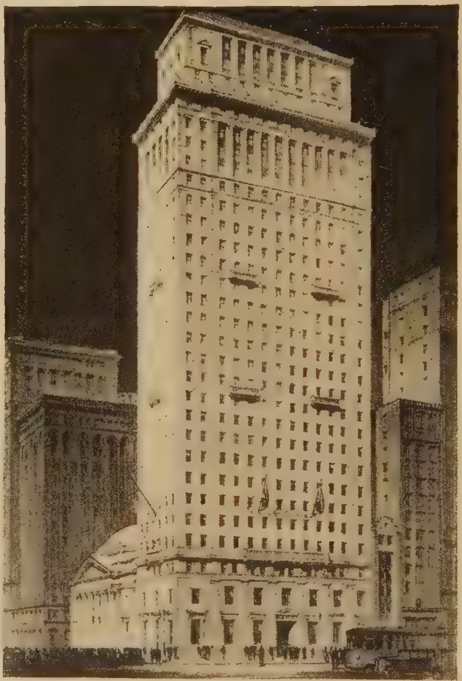
The Soldier's Medal, fourth in the order of Army decorations. Gaetano Cecere, sculptor



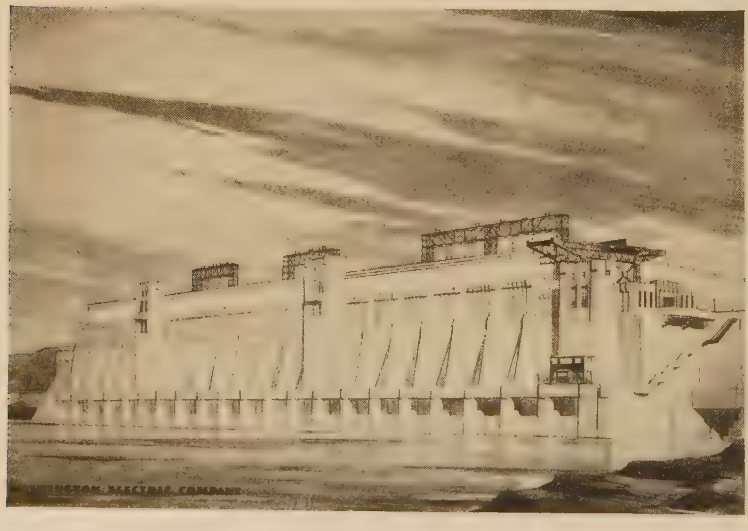
The Charity Crucifixion Tower, Detroit, Mich. Henry J. McGill, architect; Talbott F. Hamlin, associated



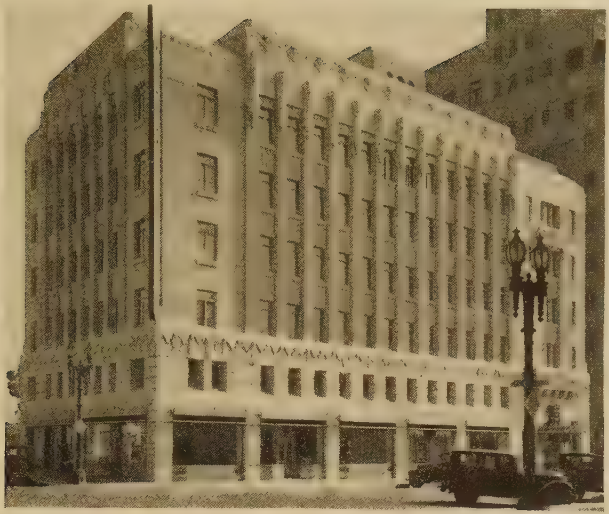
The classic tradition still obtains in Oklahoma City—the Historical Society Building. Layton, Hicks & Forsyth, architects



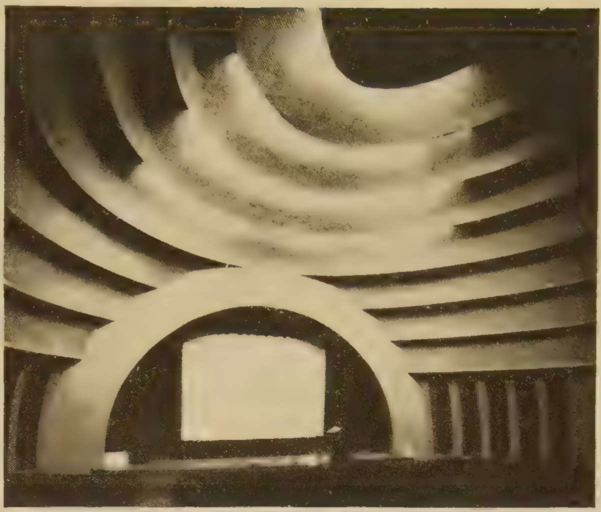
The cornice has not entirely disappeared. Office building for the Girard Trust Company, Philadelphia. McKim, Mead & White, architects



The Washington Electric Company Station, Rock Island on the Columbia River. Stone & Webster Engineering Corporation



Terra-cotta and concrete in the Lafayette Hotel, Long Beach, Calif. Schilling & Schilling, architects



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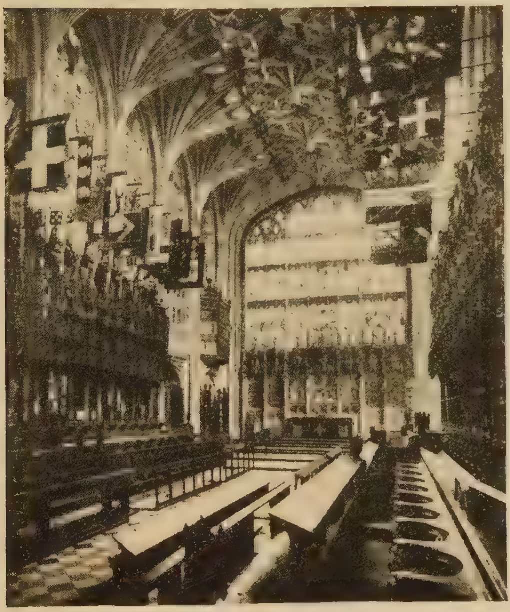
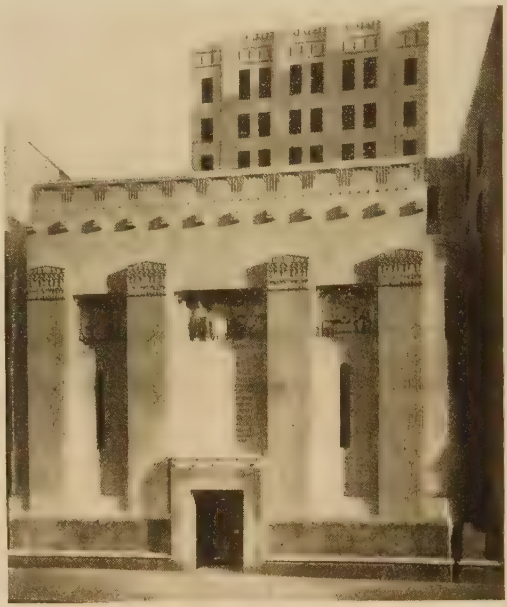
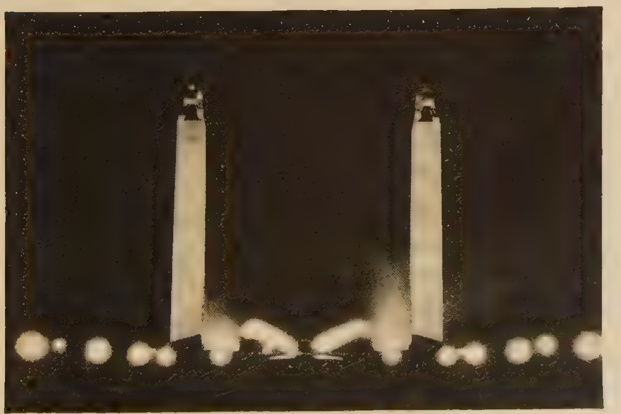
The auditorium in the New School for Social Research, New York City. Joseph Urban, architect



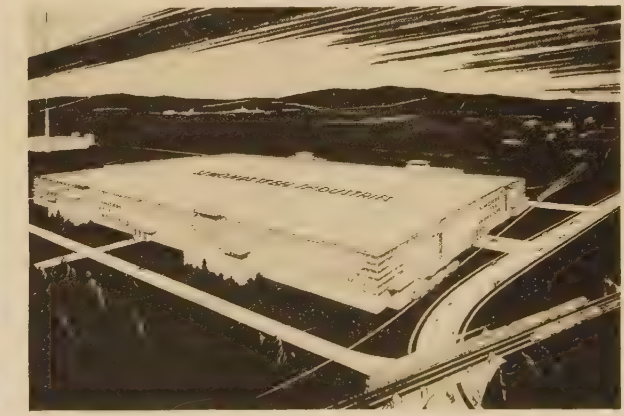
St. George's Chapel, Windsor Castle, has been reopened after restoration work covering ten years



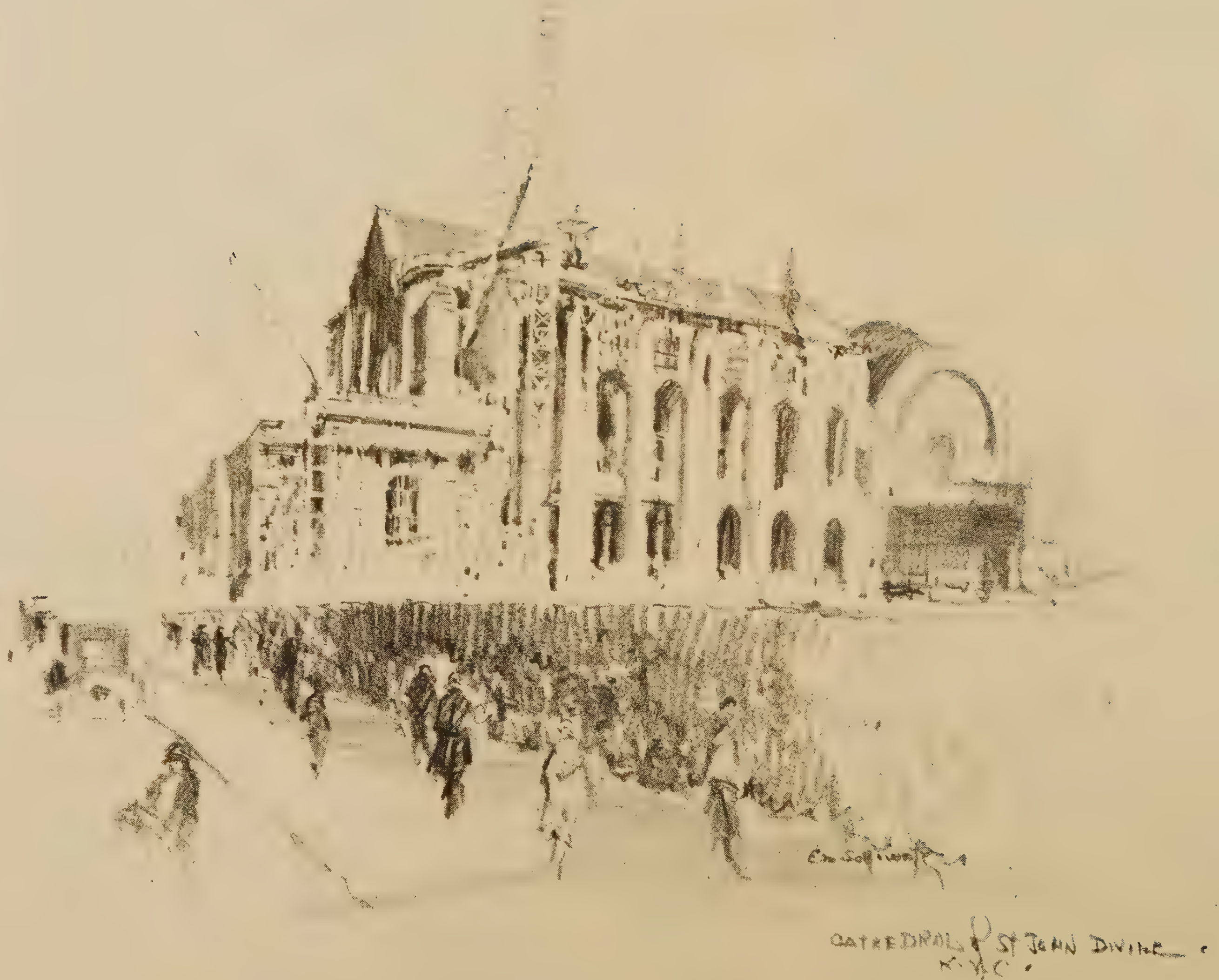
Los Angeles has just opened its new Stock Exchange. Samuel E. Lunden, architect



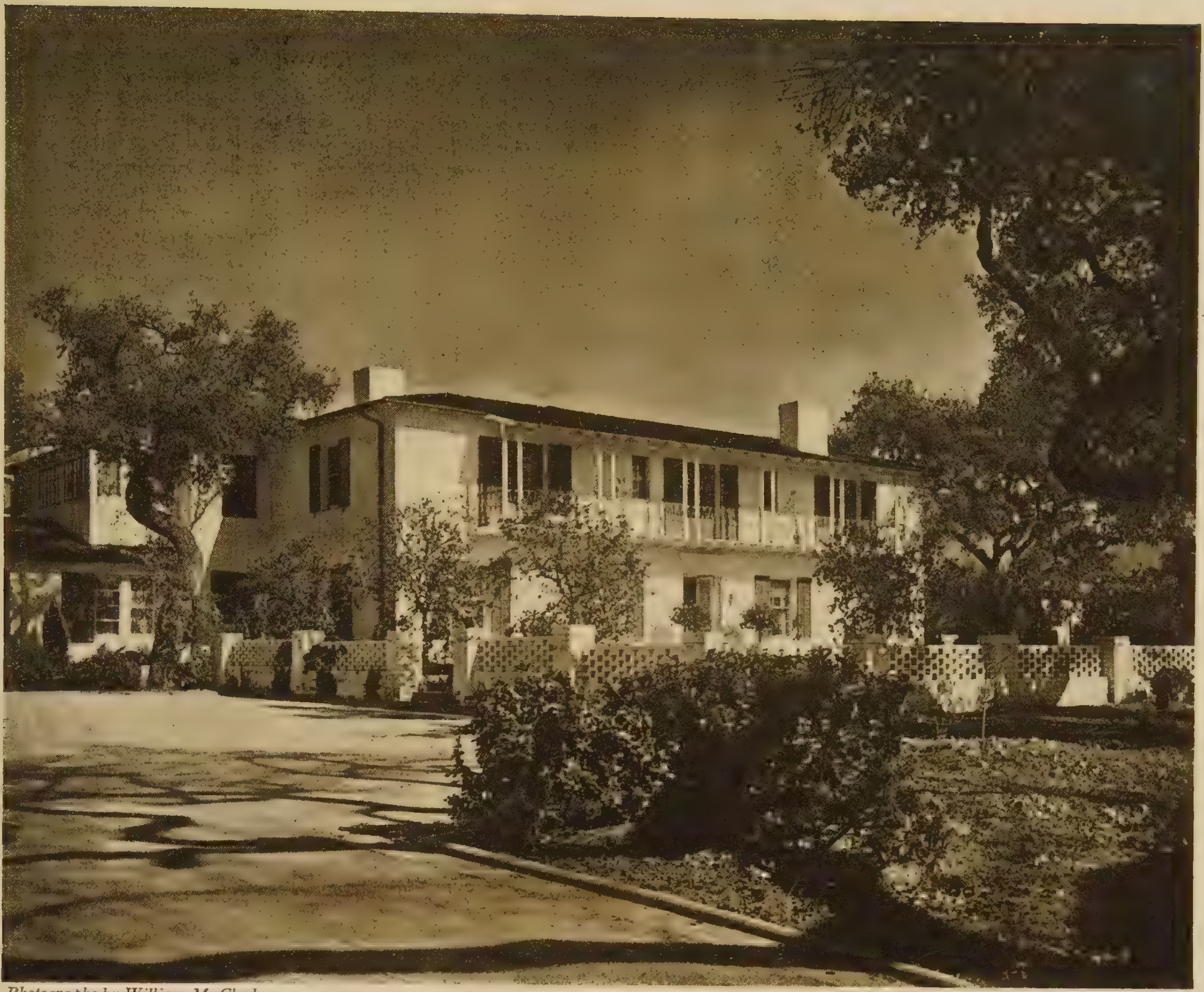
The Soldiers and Sailors Memorial Bridge, Harrisburg, Pa. Gehron & Ross, architects; Lee Lawrie, sculptor



The proposed windowless factory for Simonds Saw and Steel Company, Fitchburg, Mass. The Austin Company, engineers and builders


E M Schiwetz
Cathedral of St John Divine
N.Y.C.

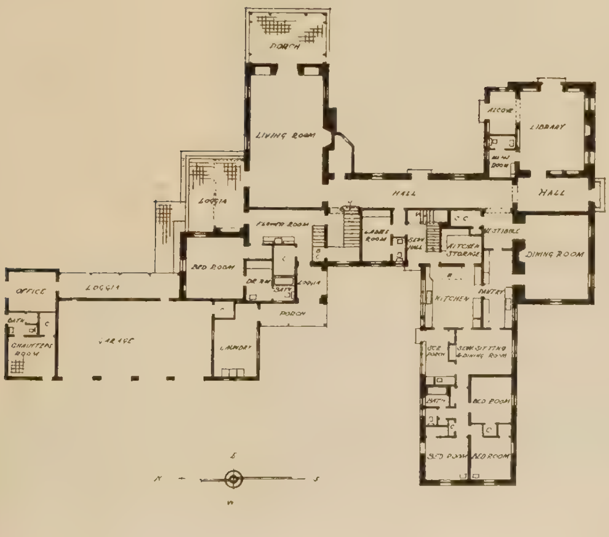
The Cathedral of St. John the Divine, New York
From the pencil drawing by Edward M. Schiwetz

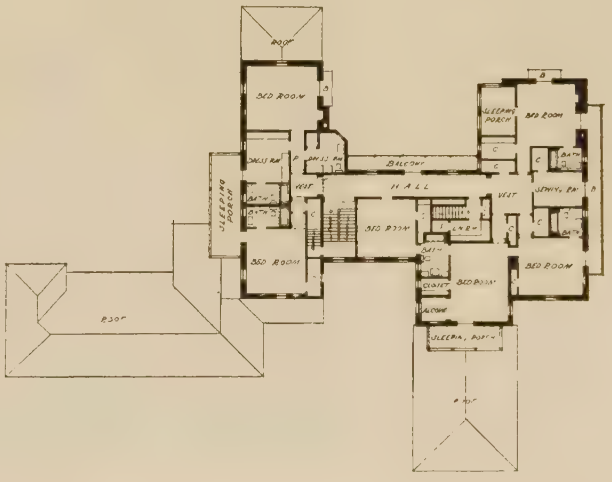


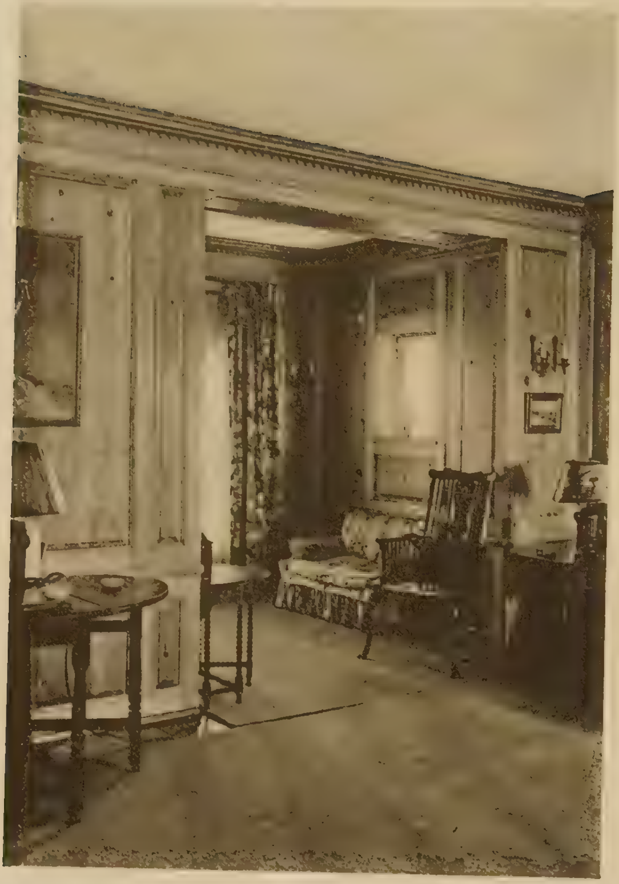
Photographs by William M. Clarke

House of Stanton W. Forsman, Pasadena, Calif.

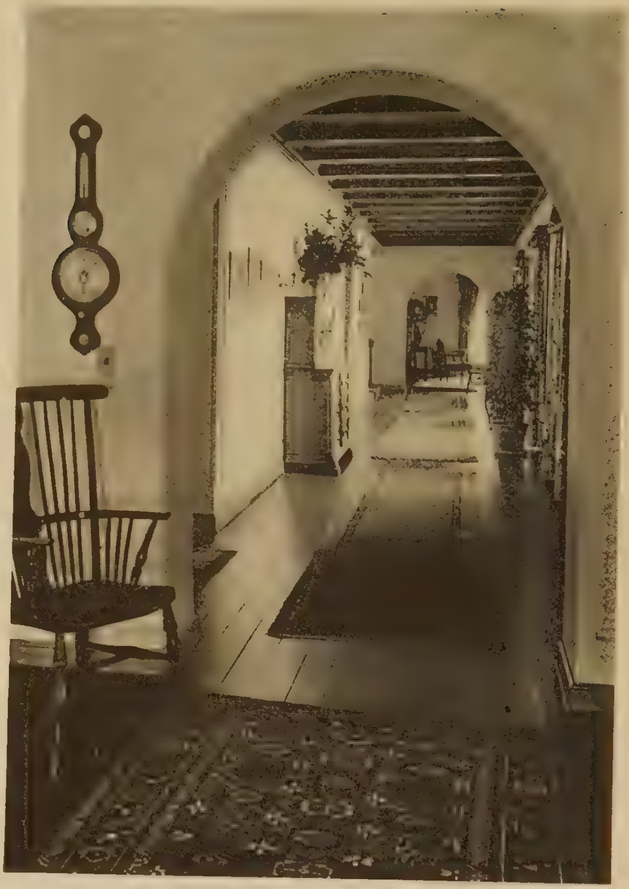
REGINALD D. JOHNSON, ARCHITECT





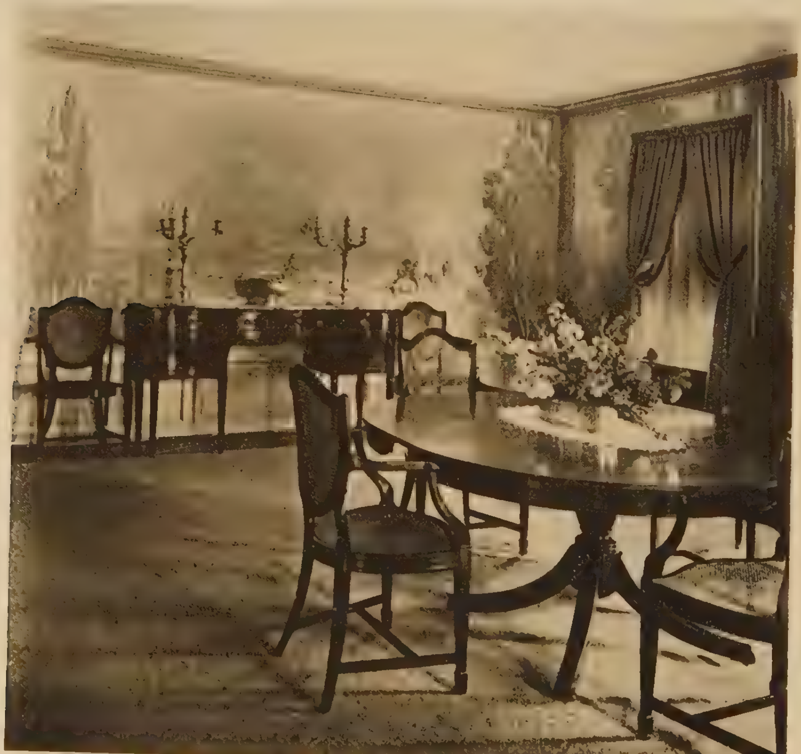


A corner of the library



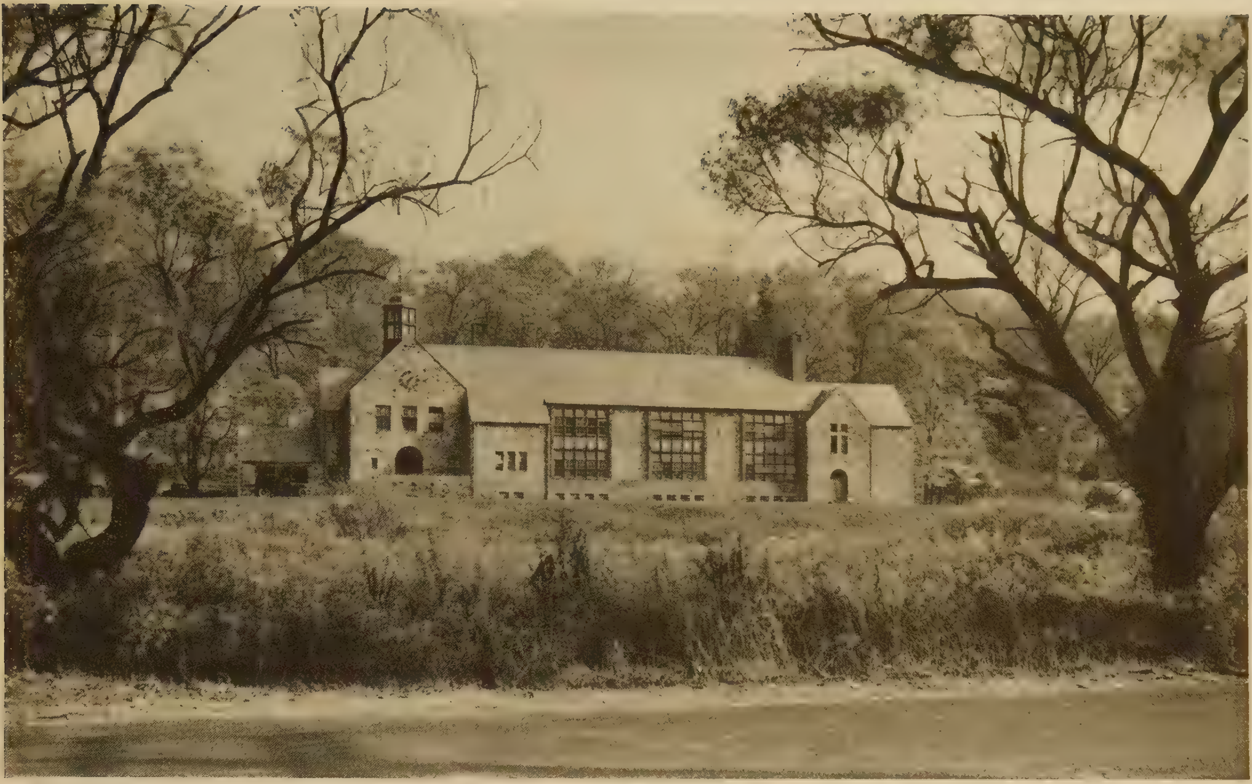
Hall, looking toward living-room

House of
Stanton W.
Forsman,
Pasadena, Calif.



The dining-room

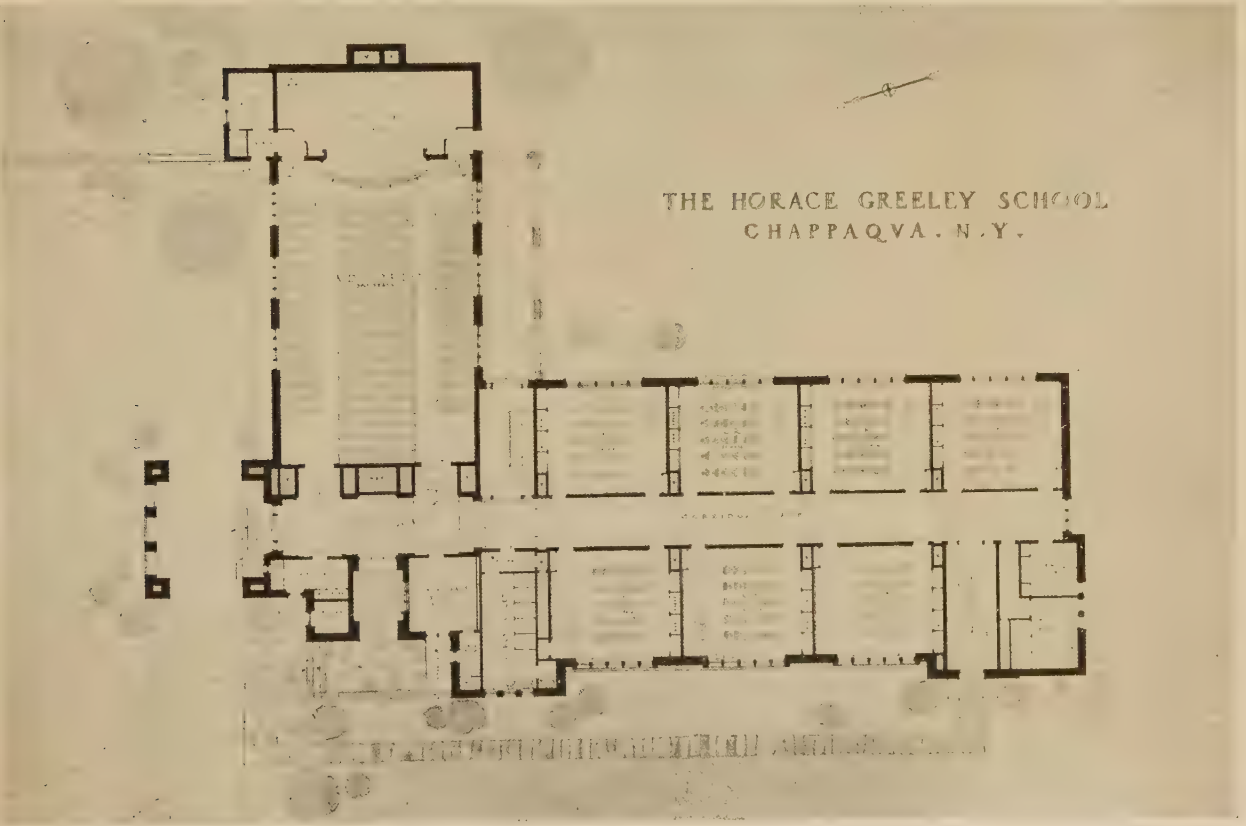
REGINALD D.
JOHNSON,
ARCHITECT

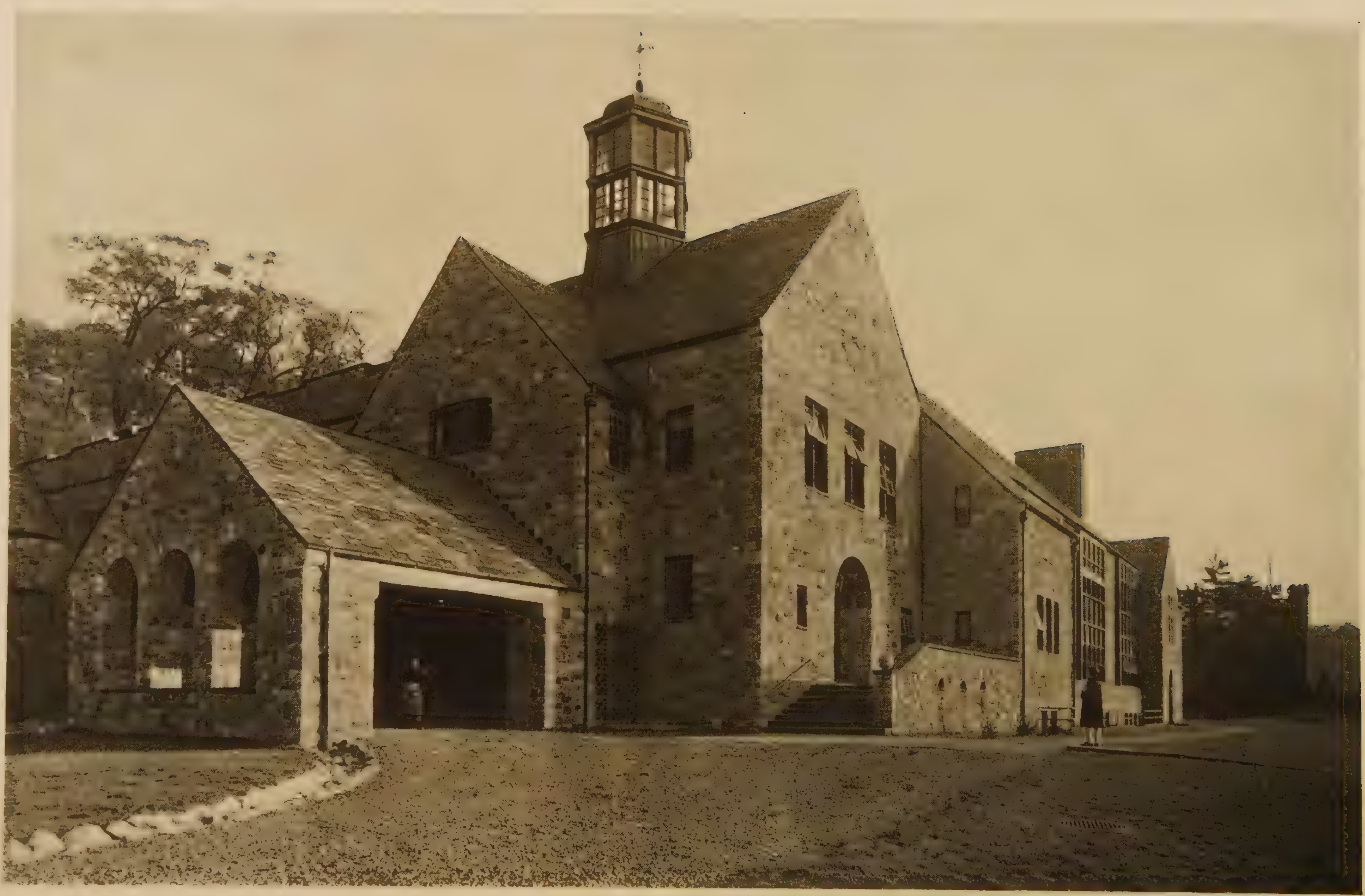


Photographs by Paul J. Weber

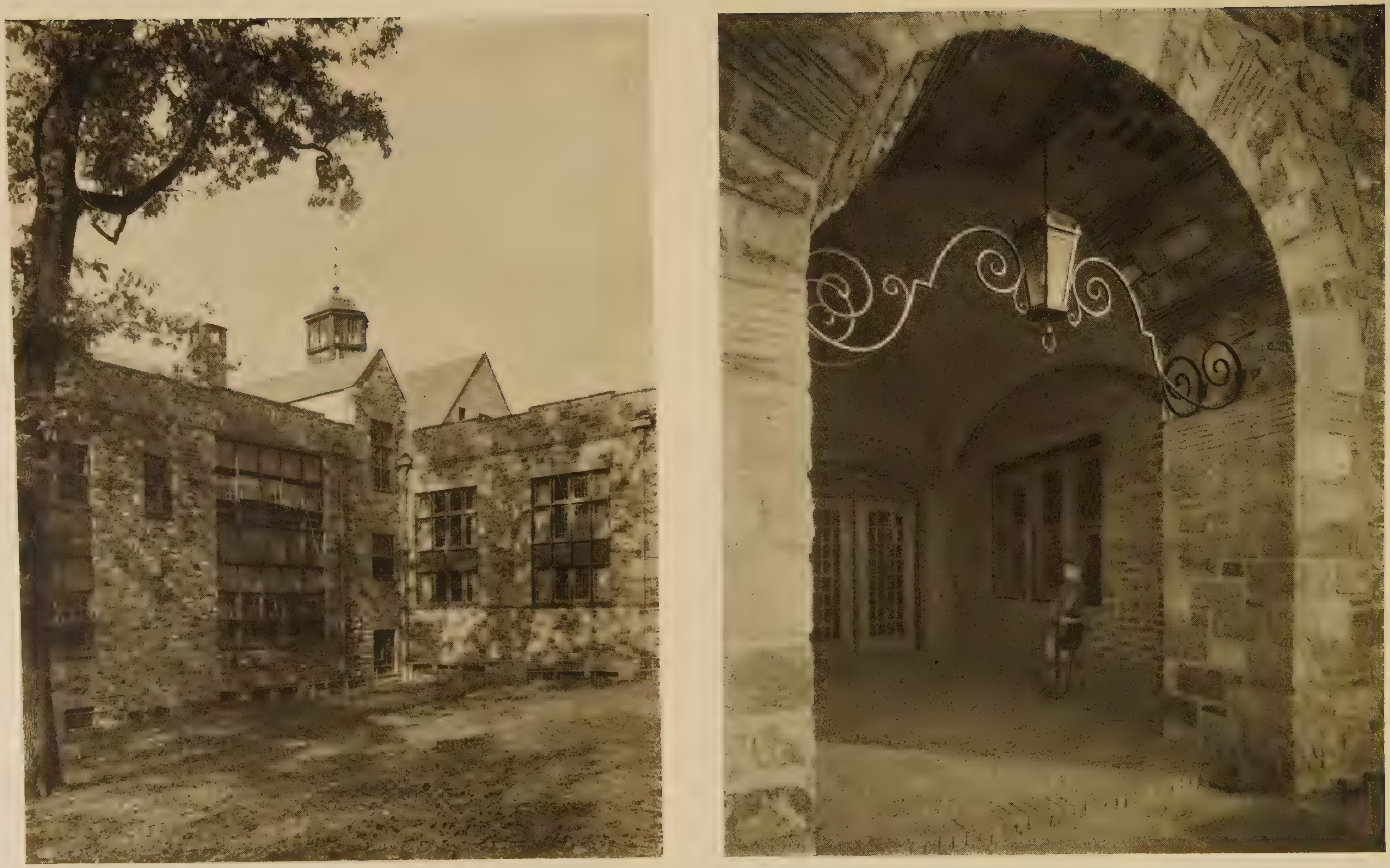
THE HORACE GREELEY SCHOOL, CHAPPAQUA, N. Y.

JAMES RENWICK THOMSON, ARCHITECT

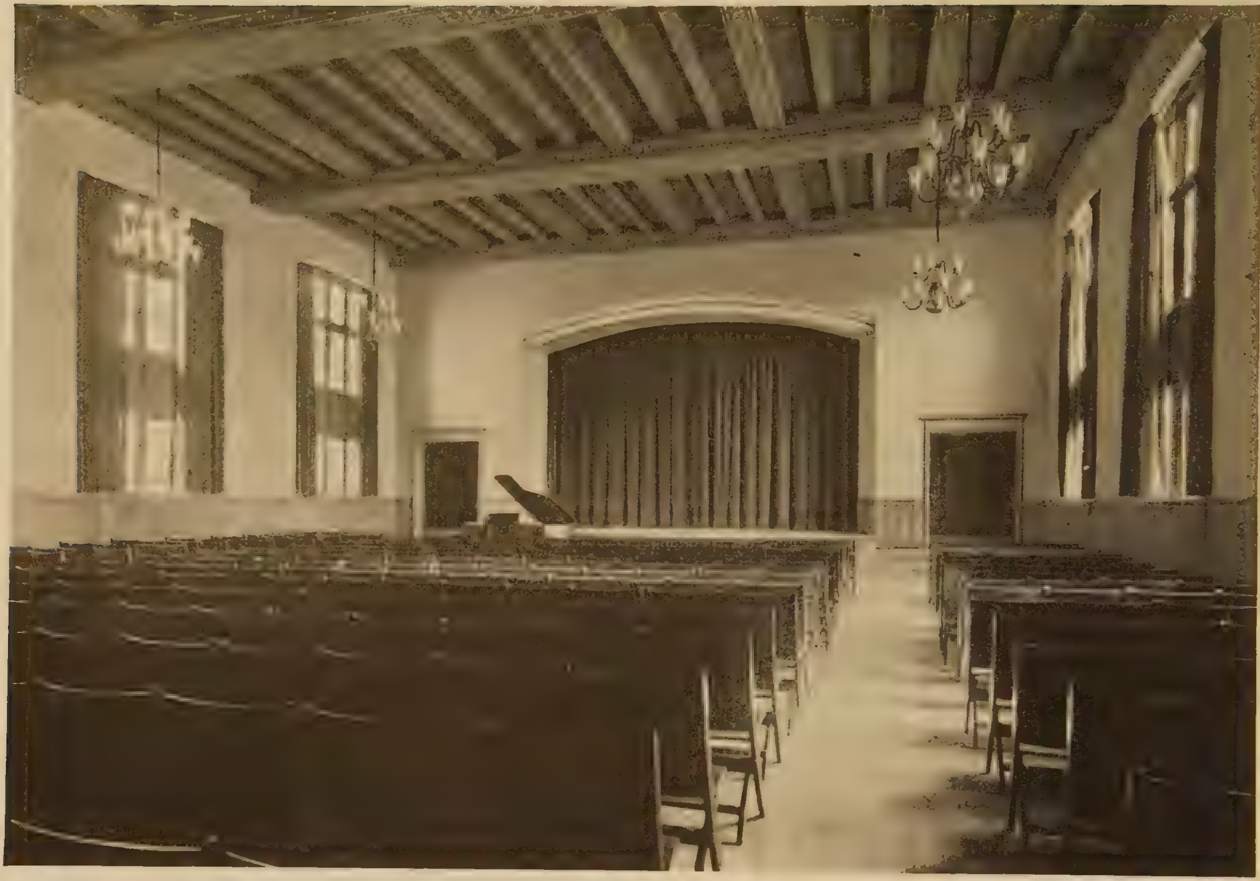




The Horace Greeley School, Chappaqua, N. Y. JAMES RENWICK THOMSON, ARCHITECT

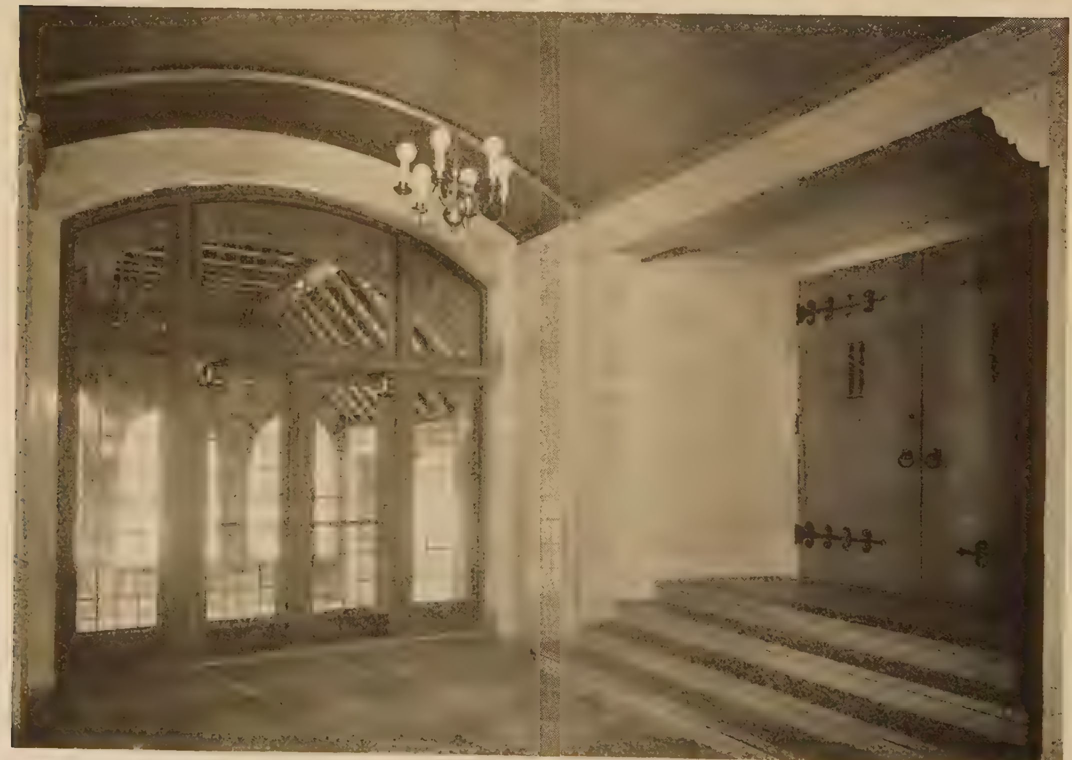


The Horace Greeley School, Chappaqua, N. Y. James Renwick Thomson, Architect



The auditorium

Entrance lobby



The Horace Greeley School, Chappaqua, N. Y. James Renwick Thomson, Architect

NUMBER X
IN A SERIES
OF

WORKING DRAWINGS

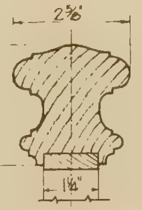
By Jack G. Stewart

This series, in which one drawing will appear each month, is designed to cover the smaller practical problems that confront the architect in his day's work. The subjects chosen are those which, while not uncommon, call for some experience and knowledge of approved solutions. Next month the subject is Commercial Stair Construction.

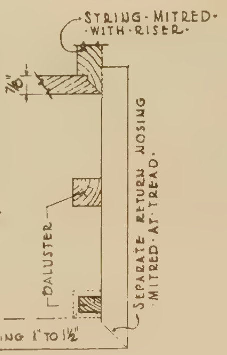
[ARCHITECTURE]
CHARLES SCRIBNER'S SONS

PREVIOUS SUBJECTS IN THIS SERIES

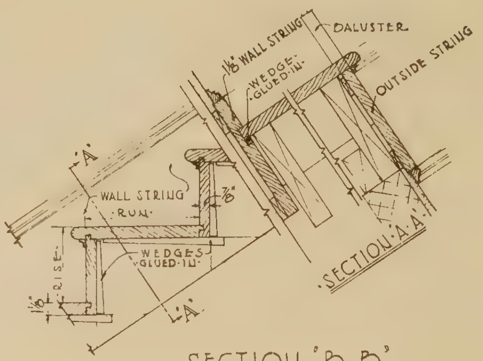
I. Flagpole Holder on an Exterior Wall
II. Radiator Enclosures
III. Cigar Sales Counter
IV. Woodwork in a Library
V. Built-in Kitchen Cupboard
VI. Various Trims and Mouldings
VII. Telephone Booth
VIII. Men's Toilet
IX. Window Spandrels



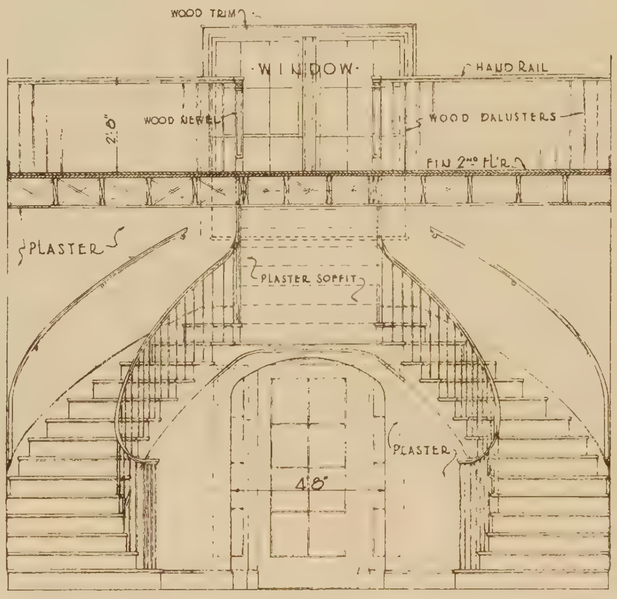
·HANDRAIL·


·STRING·MITRED· ·WITH·RISER·
7/8"
SEPARATE RETURN NOSING ·MITRED·AT·TREAD·
DALUSTER
NOSING 1" TO 1½"

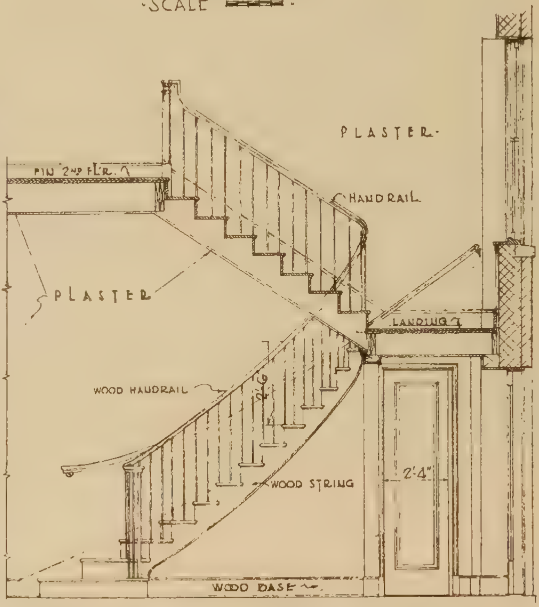
AVERAGE RISE = 6¾" TO 7¼"
AVERAGE RUN = 10" TO 11¼"
SUM OF THE RISE
& RUN TO BE 17½ TO 18"



·SECTION "B-B"
·SCALE 0 5"·



·ELEVATION·



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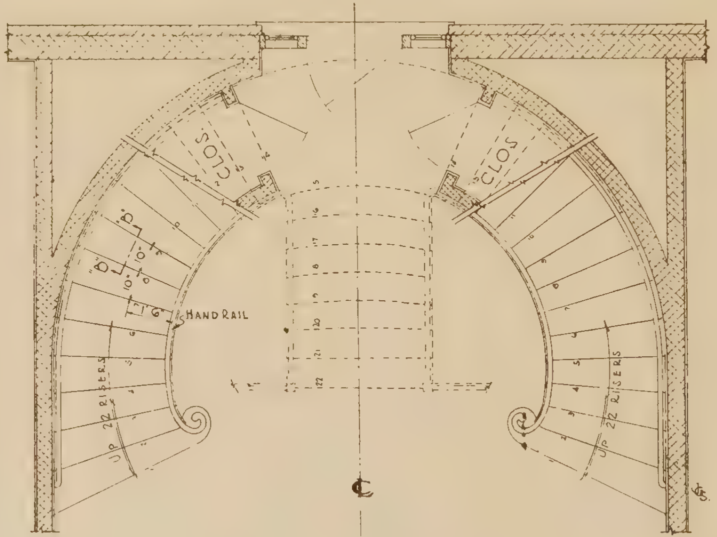


·PLAN

·DETAIL·OF·CIRCULAR·STAIR·FOR·A·RESIDENCE·

SCALE: 0 1'0" 2'0" 3'0" 4'0"

·PLATE Nº·10·

Some Pitfalls in Supervision

By W. F. Bartels

VIII. INTERIOR WOODWORK, *CONTINUED*

THE apron under the sill is preferably moulded or returned on itself. The cheaper way is followed many times —apron boards merely cut off at right angles at lengths for each window. This, however, leaves a square edge, unfinished in appearance and undesirable in effect for an insignificant saving.

It sometimes happens that in order to turn out a pleasing façade the architect is forced to locate a window close to a partition. He allows enough width and some to spare for the trim, but often on a job the laying out of partitions will be several inches out of the way, an item which means nothing to the average modern builder. Consequently when the window is to be trimmed it is necessary to rip off some of the moulded members or facias. This not only spoils the room, but gives the window a decidedly lop-sided appearance. Similarly, a room is marred by an incomplete door trim which has been necessarily reduced in width because of an encroaching partition. This is particularly true if the door should be centred in a hall, for example, and is wrongly shifted to one side. However, if the back-band of the trim is within an inch or so of the partition it is far better to set the back-band tight up against the partition (Fig. 2) or fill in with a flush strip (Fig. 3), rather than have a small vertical, groove-like space between it and the wall. This space is unsightly, hard to repair if it cracks, and difficult to paint without spattering the trim.

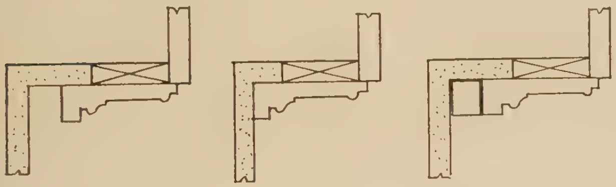


FIG. 1 FIG. 2 FIG. 3

Where an opening in a partition crowds the trim within an inch or so of a cross partition, an awkward corner will be formed unless the opening is moved as in Fig. 2, or the trim filled out as in Fig. 3

The use of any but the best sash cord or chain should not be permitted. A well-braided, solid cord will outlast many of the inferior cords as well as give a better appearance. The inferior type is easily detected when the cord is cut. It generally has a centre of a soft material differing from that of the outside; it is coated with a heavy filler which gives it an appearance somewhat similar to the good cord. A sash chain, if not of brass or bronze, should have a rust-proof finish, because there is hardly a part of the building subject to more changes of atmosphere. When rusty it looks unsightly, yet it is most difficult to paint thoroughly when once in place.

* * *

The modern metal window, which generally has the sash already in the frame, should be checked to see that it is set in a straight plane. Any deviation from the absolute vertical is bound to cause serious trouble afterward in the operation of the windows. After the sash are all hung, glazed, and painted, the superintendent should try each window to see that it works readily, and have adjustments made while the metal-sash contractor is still on the job. This will avoid vexation on the part of the tenant or owner later, and some delays in getting the windows in good working order.

Door trim, like window trim, should be pinned and dowelled at the mitre and well glued. The jambs should be firmly blocked out and trued up. In a first-class job the door stops should be glued on at the mill and not left lightly nailed so that they can be adjusted to any curve or slant the door may have when hung on the job. The heads should be level, and in nailing the trim the nails should be driven in the quirks of the casing whenever possible. Casings on the inside of closets should be checked over, as frequently some of the pieces are either forgotten or else are a conglomeration of left-over odds and ends. It seems hardly necessary to remind a superintendent that any standing trim should not be spliced.

Where a priming coat is called for it is much better that this should be put on at the shop. Before this is applied all knots should be shellacked. The priming coat should consist of a goodly proportion of linseed oil.

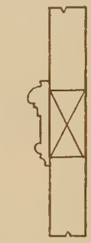
Stairs should always follow the details, naturally, but as an added precaution the head room and floor heights on the job should be checked. This will sometimes vary from the original plans and heights given, and the architect's attention should be called to it, so that his details may be changed to conform with the conditions on the job before it is too late.

Check a possible substitution of thin doors for thick ones. Thin doors soon warp, particularly if exposed to the weather. Inside doors should be no less than 1⅛ inches; outside, no less than 1¾ inches.

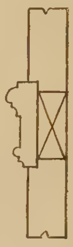
In exterior doors the lock if possible should not be put at a cross-bar, since the letting in of the lock will tend to destroy the tenon and consequently weaken the door. In case the exterior openings are arched it is advisable to make certain that the drawings are so worked out that doors will swing open the full width without the head stile bumping the arch jamb. Probably every architect has at one time or another designed an arched doorway with doors which would not open full width.

In panelled work, the millwork arriving on the job should be gone over carefully to see that it checks up with the architect's details and shop drawings. At the mill they often prefer (for the sake of a little extra profit) to glue on a member rather than "let it in" according to the architect's details (Fig. 4). Too often the mill man is not interested in the permanency of the job, just so long as the work holds together until he has his final payment.

Fig. 4

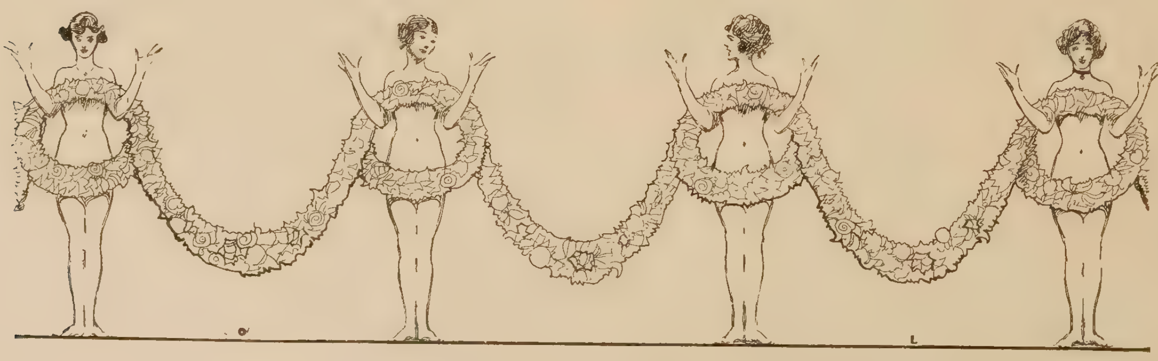


The section on the left shows the cheap and poor way in which panel moulding is sometimes merely glued on—to curl or break away from its bed later and disfigure the woodwork. Such a moulding probably has been detailed as shown at the right, to be let into the adjoining woodwork



The nailing of all trim should be carefully done and the nails sunk with a punch of the proper size. No hammer dents should be accepted on first-class work. Sometimes a large punch is used or not held straight, resulting in a large or jagged hole. These holes should be painted first with an oil paint and then puttied with a paint putty. Failure to make the contractor do this will often result in the putty coming out and causing unsightly blemishes.

Baseboards and base mouldings, as well as picture and panel moulding, should be in as long lengths as is practical. They should fit tightly against any member they abut, such as a door or window-casing. The carpenters when cutting this trim, or any trim, should not be allowed to cut it by eye, but should be compelled to use the mitre-boxes. The old argument that the eye is as accurate as the mitre-box does not hold water, and will particularly show its fallacy at projecting corners.



THE SISTERS EVE, IN THE MANNER OF THE BROTHERS ADAM, BY ORSON LOWELL

The Editor's Diary

Thursday, January 1.—The one institution which I had thought to be as nearly permanent as anything in this changeable world is Batsford's shop at 94 High Holborn, London. It is to be moved to the West End in North Audley Street. In 1843 Bradley Thomas Batsford, who had been apprenticed six years before to Mr. Bickers, a bookseller of Leicester Square, set up business as a seller of second-hand books in High Street, Bloomsbury. He soon moved to 52 High Holborn, and later to the shop at No. 94, the dusty book-crowded window of which has been familiar to several generations of architects and draftsmen. A particularly bitter pang is suffered in the thought that Mr. Batsford's office up-stairs, loaded to the ceiling with the rarest in architectural literature, is no more. However, the new shop is well established in a Georgian house dating from about 1790, which has been skilfully remodelled by Professor A. E. Richardson, with the hope of perpetuating some of the atmosphere of the old premises in Holborn.

Friday, January 2.—The instalment plan for buying a home seems to be coming. Kansas City, Mo., has just put into effect, through its real-estate board, a plan by which it is possible for the prospective home-owner to purchase every service and material involved in the construction of a home in a single operation. The scheme has an insurance provision as well. The owner pays a stipulated monthly sum to a trust company, which covers interest and principal payment, annual taxes, and insurance payments. If the buyer is disabled permanently by accident or illness, his payments are insured. If he dies before the home is completely paid for, his widow receives a deed to the property free and clear, or subject only to a first mortgage if the contract has specifically so provided.

Sunday, January 4.—Dropped in at The Art Center this evening to hear Richard Neutra speak on Modern Architecture. He divided the architect's problem into two distinct phases. On one side are the requirements of those who are to use the building. On the other side are the possibilities and limitations of the producer—that is, the available materials and processes with which the building is to be created. Between these two sets of governing conditions the architect must find his way to a solution. Mr. Neutra showed a number of slides from photographs he had taken on his recent trip around the world. In China, in a western mining camp, or along a Dutch canal, one may encounter modern architecture which in Mr. Neutra's opinion is nothing more than architecture in which common sense has governed—in which one has met the requirements of a definite problem in the most direct way without reference to what some one else has done in some other part of the world, and in some other century.

Tuesday, January 6.—In all this talk of millions of dollars appropriated for public construction, it is interesting to note the fact that one million dollars' worth of construction means a year's employment for two hundred workmen in the building trades. There is in addition, of course, the labor required of manufacturers and transportation.

Wednesday, January 7.—Bassett Jones, speaking on vertical transportation before the monthly luncheon Chapter Meeting, A. I. A., to-day, presented some startling facts. In New York City our elevators carry more than twice as many passengers as all the rest of the public conveyances combined — subways, elevated roads, busses, taxicabs. We have about reached the limit of building height in the Empire State Building, eighty-five floors, unless we are willing to adopt the "plaza floor" scheme. This means that in effect we put one fifty-story building on top of another, the junction point being a floor, or rather pair of floors, at which the lower elevators stop, and a whole new upper series begins. With such a scheme, of course, we can have hundred-story buildings, or even hundred-and-fifty-story buildings—if we are willing to make two changes. The speed of elevator travel has reached the limit of fifteen hundred feet a minute, beyond which we cannot go, for physiological reasons. The car size has also reached a maximum. Therefore, the next step is double-decking the cars, or running two separate cars in the same shaft. With the former scheme the entrance level will be a pair of floors rather than a single floor, and floor heights throughout must be uniform. While the lower deck is discharging passengers at one floor, the upper deck will be discharging or taking on passengers at the floor above. If two separate cars are run in the same shaft, the double-decking base entrance scheme is followed, the upper car continuing without stops until it reaches the beginning of the upper half of the shaft. The lower car serves the lower half. Presumably they return to the bottom simultaneously. There are no difficulties here, and no added dangers which are not easily safeguarded. As a matter of fact the accident record of vertical transportation is remarkable: since 1905, with the commonly used counterbalanced car, there has been not one death through failure of the equipment; what accidents there have been, have been due to the human element. With double-locking car gates and entrance doors, this danger is eliminated. It is an interesting fact that every high building presents its own vertical transportation problem—a question of how much traffic there is and when, how far it has to be carried, and how fast.

Thursday, January 8.—Albert Kahn spoke recently before the Cleveland Engineering Society, and told something of the organization of his office in Detroit. His firm in normal times employs nearly four hundred men and women. Among these are some forty secretaries, stenographers, typists, and filing clerks; about twenty accountants; fifty or sixty mechanical engineers; forty structural engineers; thirty or forty field superintendents; several specification writers; the balance draftsmen and designers. Mr. Kahn makes the point that his force must necessarily be larger than those of other firms who do a greater amount of work in dollars and cents, for the reason that he has on his boards frequently forty jobs, large and small, all of which are in a hurry.

Friday, January 9.—Carl Arthur Beck joined the editors at luncheon today and gave us a new conception of the investment value of mural paintings and sculpture in connection with public buildings. Beck, who serves architects and acts as liaison officer for several mural painters and sculptors, told of his experience with hard-boiled bankers, real-estate promoters, and business executives in translating architectural art to them in terms of good business investment. Naturally, his arguments emphasized not art for art's sake, but art for practical investment's sake. The office-building lobby, the bank interior, the national headquarters of a corporation—in all these cases it is demonstrable that suitable decoration that says something to the prospect-public is an important factor in income producing, hardly less important than decent lighting and efficient elevator service.

Saturday, January 10.—Dined with Alexander B. Trowbridge, up from Washington for a few moments, and with James Monroe Hewlett. Trowbridge is much exercised over the inequalities and generally unsatisfactory results inherent in the percentage basis of architects' charges. He is experimenting now with various other methods of charging, the most satisfactory of which, at present, seems to be a fixed fee plus costs. These costs consist of draftsmen's time, as taken from the time cards, plus overhead charges for rent, light, heat, telephone, secretarial service, and materials. After some investigation and experiment, Trowbridge finds that he can lump all of this overhead together and express it as a factor of the drafting cost. This simplifies accounting and billing matters enormously, and is easily comprehended by the client. In several instances, where Trowbridge has offered a client the choice between the usual percentage basis and this more logical scheme, the client's preference has been for the latter. After all, it is nothing more than a parallel of the way one pays a surgeon his flat fee, and pays in addition the costs of hospital, nursing, and supplies.

* * *

Monday, January 12.—William Jones Smith has been writing in the *Chicago Tribune* on how to select a contractor—good sound advice throughout. He tells of one satisfactory and somewhat unusual arrangement which he has observed in his own practice. The owner and the architect practically make a partner of the contractor, who sets a top-price limit for the work, and agrees to divide the savings below that on the basis of 85 per cent to the owner, and 15 per cent to the contractor.

Friday, January 16.—To-night the Society of Arts and Sciences presented to Cass Gilbert a Gold Medal for inaugurating the age of skyscrapers with his Woolworth Building. Mr. Gilbert's remarks of acceptance contain some very interesting thoughts. "We have carried concentration too far and must begin to think in terms of decentralization.

"The most beautiful skyscraper that is possible has not yet been built. It may never be built. Those of us living to-day may never see it. And remote posterity may never see it, for the need may change and these ephemeral structures will not last indefinitely.

"I doubt if skyscrapers are desirable for small cities, for they reduce property values by drawing tenants from surrounding buildings, just as they do in large cities, only with more serious economic consequences. As to whether the skyscraper, *per se*, is cause or effect, I leave that discussion in the competent hands of those who discuss whether the hen or the egg came first."

Monday, January 19.—William F. Lockhardt told me at lunch to-day of an ingenious scheme practised by a friend of his who had recently built a house. The financial setup of the undertaking called for a first mortgage, and a comparatively small second mortgage. Instead of taking out the latter, however, at its exorbitant cost, the builder separated from his main contract the oil burner, electrical refrigerator, instantaneous hot-water system, and several other items which he found he could buy on an instalment basis. In other words, he paid 6 per cent for the unpaid portion of these items rather than several times that much upon a second mortgage.

Thursday, January 22. — At The League to-night Bassett Jones gave us a frank exposé of what is wrong with France architecturally, illustrated by his own motion pictures. The two things which irritated Bassett Jones most acutely were the unrestrained riotous magnificence of Versailles, and the use of galvanized-iron roofs to replace tile or thatched roofs on some of the lovely old cottages.

Sat with David Coyle, Richmond Shreve, and his party at the dinner beforehand, when Mr. Shreve told us some interesting anecdotes of his former association with Carrère & Hastings. Thomas Hastings once said: "An engineer is a person who adds two and two together to make four, but then does nothing more about it!" When the engineers in the office would tell Mr. Hastings that something could not be done structurally, his usual reply would be: "Of course not, if you approach it in that frame of mind." Two of the engineers in the privacy of their own room might be discussing a certain girder size; one would suggest a twelve-inch depth; the other might say, "I am afraid it won't do the job, let's make it fifteen inches." Usually the reply came back: "Of course it won't hold if you approach it in that frame of mind."

Friday, January 23.—In connection with the recent notes in these columns regarding Raymond Hood's conviction that the architectural student should be taught to model as soon as he is taught to draw, the following observation is interesting. Stephen Burnham in "This Our Exile" has a Princeton architectural student say: "In architecture you have, or you're supposed to have, an idea in three dimensions; so you spend seven or eight years learning how to translate it into two, just so some one else will understand how to put it back into three."

Saturday, January 24.—Stanley T. J. Fryer, F. R. A. I. C., after viewing an exhibition of paintings at the Royal Canadian Academy, suggests that beauty, as the architect knows it, seems nonexistent as far as the artist is concerned. Admitting that the majority of the architect's efforts may be mediocre and worse, there are yet many fine achievements, but hardly a single one of them has appealed to the painter as a subject worthy of his brush.

Does the modern artist prefer ugly architecture?

Monday, January 26.—The Broadway Association of New York has announced its selection of the Irving Trust Building at 1 Wall Street as most worthy of civic endorsement among all structures erected in 1930 in the Broadway district. Rather interesting, in that the building is not yet finished. When the jury sees some of the interiors they will probably award it another medal.

Wednesday, January 28.—Carl Milles and Madame Milles were the guests of honor at a reception to mark the opening of the new Swedish Baptist Church this afternoon on East 61st Street. Martin Hedmark designed it, and it is redolent of Swedish motives and symbolism, all carried out with a frank naïveté which gives real pleasure. There are minor details at which one might cavil, such as prolonging the front elevation far above what would be necessary to stop the roof; the over-busyness of the rostrum with its divided organ case, and possibly too many points of interest, but the refreshing thing about it all is that some one has been thinking and has not been afraid to express himself.

One of the most interesting details in the whole church was Hedmark's frank sheathing of his steel columns with terra-cotta which follows very freely the steel section.

* * *

Saturday, January 31.—There is much talk these days of the desirability of passing out government jobs to individual architects, rather than have the work done by one of the several government architectural departments. It brings up the same difficulty that occurs constantly in the matter of State work. Most of the buildings thus designed—hospitals, institutions for the insane, prisons, post-offices—depend for their success upon an accumulated mass of technical data which is in the hands of the federal and State architects, and is not easily available to the private practitioner. It is quite likely that passing out these jobs would result in more individuality of design, but it is also as likely that the buildings would not fulfill their utilitarian requirements nearly so well. This prompts the question whether it might not be possible for government architectural agencies to confine their work to research and the tabulation of data—a constantly changing accumulation—leaving the actual design of the buildings to individual practitioners who would be guided by the technical information thus made available.

CONTACTS

DEVOTED TO A BETTER UNDERSTANDING OF THE BUSINESS SIDE
OF ARCHITECTURE AND ITS RELATION TO THE INDUSTRIES

Painting Steel and Masonry

By Hurlbut S. Jacoby and Glenn H. Pickard

Chief Engineer and Chemical Engineer, respectively, of the H. K. Ferguson Company

PAINT failures can usually be traced either to the use of poor quality material, improper application, or application on surfaces which are not in proper condition.

In the case of improper material, two subdivisions pertain: First, good material specified for the wrong location; second, poor material not good on any location.

In connection with the latter it may truly be stated that a paint can be bought at almost any price within reason that one cares to suggest.

In reference to the former, it is proposed to discuss proper materials to be used for two specific locations found in major quantity inside the modern industrial plant—structural steel, and brick sidewalls. In this discussion it is assumed that normal atmospheric conditions pertain, and therefore high humidity and corrosive gases will not be included.

In the case of structural steel, the first coat of paint must be of such a quality that it is held in place by adhesion and retards the formation of rust. Red lead, because of its chemical and physical properties, comes closest to fulfilling both of these requirements.

Years ago the shop man objected so strenuously to red-lead paint, because of its harder application and quick hardening qualities, that other cheaper and poorer materials were used, with poor results. Improvements have gradually been made, however, until to-day ready-mixed red-lead paints of high grade are obtainable in a form that can be applied to steel at reasonable cost.

Less costly, but with high protective properties, is red oxide of iron, commonly called iron oxide. It is interesting to note that in the recent wrecking of the old Waldorf-Astoria Hotel in New York, the only effect of time on the one coat of red oxide paint applied on the steel erected forty years ago had been to dull the high gloss of the paint.

Natural oxides of high iron content are the best. At slight cost, the addition of about 10 per cent zinc chromate adds greatly to the rust-preventive properties of iron oxide, which otherwise is only slightly inhibitive.

For the finish coat on steel, we might consider three paints which are highly satisfactory for the particular purpose.

In the textile mill or furniture factory, where cleanliness and light are important, mill white paints are often used for field coats. During the past few years aluminum paint has made rapid strides and is admirably adapted for the finish coat in plants of many kinds. In the steel mill, the foundry or forge shop, a black graphite paint is recommended.

Many owners, desiring a finish coat of mill white paint, have felt it necessary to start with a shop coat of gray paint in order to cover to better advantage with the finish coat. On the other hand we have found no particular advantage in coverage of white paint over a gray priming coat as compared with red, two coats of white being required in either case. Where a final coat of gray is desired, good coverage may be secured in one coat over a red priming coat. An added advantage in using two different colors is that any points which are missed in applying the final coat are immediately evident. Also, contrary to common conception, an eggshell or semi-gloss finish is far more satisfactory for a finish surface than gloss. The latter, with its greater oil content, attracts and holds dirt and dust and is actually harder to clean.

Being metallic, aluminum paint has its rightful place on structural steel, particularly as an after-coating. In addition to its excellent covering capacity and recognized durability, aluminum paint reflects light nearly as well as the average white paint.

Unlike other pigments, aluminum powder does not need to be ground in oil. The simple stirring of the pigment into the vehicle, to form a uniform suspension, is all that is required to prepare the paint for use. It should, however, be mixed and applied the same day if possible, to get the maximum leafing, the brightness, and the hiding power.

The vehicle recommended for use with aluminum powder is a long oil spar varnish. Both the vehicle and the powder may be obtained from any reputable paint manufacturer. The powder is mixed with the vehicle in the proportion of two pounds per gallon. This gives approximately one and one-eighth gallons of aluminum paint.

For finish coats on structural steel, graphite paints give excellent protection. Black or dark green are attractive colors obtainable with graphite pigments. Natural graphite is preferable, for it possesses the faculty of "leafing" over a surface, much as does aluminum. The result is a shinglelike structure, highly impervious to moisture.

The lighter colors, such as gray, light green or white, cannot be produced if graphite is used in the pigment in sufficient quantity to be definitely effective. Hence, for these shades, white lead and oil or a combination of white lead and zinc oxide in oil should be used.

PAINTING MASONRY WALLS

Of first importance in the successful painting of masonry walls is the sealing of the surface to provide a proper foundation for succeeding coats.

The first, or sealing coat, must be of a character which will prevent penetration and loss of oils from the final coats. Such penetration results in spots of low gloss which are quite "flat" in comparison with the remainder of the surface. The painter refers to this action as "suction."

The sealing coat must also prevent the action of lime compounds in the mortar, which if active will destroy the oils of the final coats of paint, producing the effect known as "lime burning."

The normal practice is to seal the masonry surface with a varnish type of size. When conditions are not extreme, a separate coat of size may not be necessary, but in all cases about 25 to 50 per cent of the first coat of paint should be varnish size to insure proper sealing.

In the case of ready-mixed mill whites, the manufacturer usually provides separate mixtures for the priming coat and finish coat. The priming coat thus prepared will usually contain a fairly high percentage of sizing material, and the addition of further size in proportions given above may not be necessary. The recommendations of the manufacturer, based upon the actual conditions, should be followed under such circumstances.

The possible action of lime always constitutes a hazard to paints used on masonry, particularly if moisture reaches the wall through some unexpected failure of the structure elsewhere.

For this reason it is considered good practice to apply a preliminary wash coat of zinc sulphate in water before the surface is painted. The zinc sulphate reacts with the lime and forms harmless compounds, thus protecting the outer film from damage.

The final coat on masonry may be the same as used elsewhere on the interior of the building and discussed later under the section devoted to Mill White Paints.

PREPARATION OF SURFACES

A source of paint failure too often overlooked is an improper condition of the surface to receive the paint. It would appear hardly necessary to point out that mud, concrete, and mortar should be carefully cleaned off all surfaces to be painted. It is not at all unusual to observe paint being applied over any or all of the items mentioned.

Grease and oil also cause much trouble, especially on steel. They should be removed with benzine or a suitable alkali. Mill scale and rust should be removed down to sound metal. If rust spots are painted over, rusting continues under the paint and finally pushes off the entire film. Badly rusted steel is best cleaned by use of a sand blast. However, if thoroughly performed, wire brushing will be satisfactory.

Moisture in masonry walls at time of painting will almost invariably cause trouble. Care must be taken to distinguish between superficial surface drying and the thorough drying which is essential to proper performance. As a rule two to three months should elapse before paint is applied to masonry, depending to a certain extent on the condition of the weather.

No priming coat should be applied shortly after a rain, or during excessively humid weather. Painting during cold or frosty weather should also be avoided.

APPLICATION

The capacity for service of any paint depends to a great extent upon the way it is applied. If brushed on, it should be brushed out by repeated passages of the brush over the surface. Particularly is this essential in the case of rough surfaces. When paint is simply flowed on, without additional brushing, it lies on top of an extraneous film that may be on the surface. It bridges over irregularities in the surface without good contact and remains a coat of varying depth.

Too thick a coat is liable to wrinkle. When this happens wear is uneven and repainting difficult. Too thin a coat is also objectionable, as only a slight amount of chalking will expose the surface underneath.

Paint may be applied satisfactorily by spraying. Skill is required in handling the apparatus to secure best results, and operators should be required to demonstrate their fitness for the work before being allowed to coat actual surfaces. A proper balance of paint and air volume, air-pressure and distance of the nozzle from the surface is essential to good work.

Too much paint applied by spray causes wrinkling. Too little air causes poor atomization of the liquid and uneven coats result. Too low a pressure fails to force contact between surface and liquid; too much air drives the paint into a mist, resulting in abnormal loss of material and poor films. It may be seen that it requires skill and practice to lay on a good coat of paint with an air spray.

MILL WHITE PAINTS

The use of the so-called mill white paints for interior factory purposes is now quite universal. This type of material has great covering capacity and, properly handled, will produce a good white surface in two coats.

Mill whites are produced in three finishes—flat, semi-gloss or eggshell and full-gloss. The semi-gloss is to be recommended for general purposes. It provides a dense heavily pigmented film which will not accumulate dust and dirt as will the full-gloss, and without the tendency to dust away which is apt to characterize a flat white.

The pigment most frequently employed is lithopone, a precipitate consisting of zinc sulphide and barium sulphate in fairly definite proportions. Lithopone may be used either alone or in combination with zinc oxide, titanox, or, in some cases, with a limited percentage of inert.

Especially treated vehicles must be used to prevent yellowing with age and under heat. In fact, the principal criterion of the value of a mill white is the length of time the paint will remain white.

The most important factor in the intelligent selection of paint is knowledge of the conditions to be met. A large amount of research is constantly in progress in the laboratories of reliable paint manufacturers. New developments are constantly appearing which provide better answers to conditions which have heretofore given trouble.

The good paint manufacturer can be depended upon to furnish a material which will meet the conditions unless he is handicapped by price restriction. Many an owner has had to resort to the removal of paint, low in first cost, but expensive in the long run.

ARCHITECTURE'S PORTFOLIO OF

TOWER CLOCKS

THE FIFTY-THIRD IN A SERIES OF COLLECTIONS OF PHOTOGRAPHS ILLUSTRATING VARIOUS MINOR ARCHITECTURAL DETAILS

Forthcoming Portfolios will be devoted to the following subjects: Altars (April), Garage Doors (May), Mail-Chute Boxes (June), Weather-Vanes (July), Bank Entrances (August), and Urns (September). Photographs showing interesting examples under any of these headings will be welcomed by the Editor, though it should be noted that these respective issues are made up a month in advance of publication dates.

❖ ❖ ❖ *Subjects of Previous Portfolios* ❖ ❖ ❖

1926–27

DORMER WINDOWS
SHUTTERS AND BLINDS
ENGLISH PANELLING
GEORGIAN STAIRWAYS
STONE MASONRY TEXTURES
ENGLISH CHIMNEYS
FANLIGHTS AND OVERDOORS
TEXTURES OF BRICKWORK
IRON RAILINGS
DOOR HARDWARE
PALLADIAN MOTIVES
GABLE ENDS
COLONIAL TOP-RAILINGS
CIRCULAR AND OVAL WINDOWS

1928

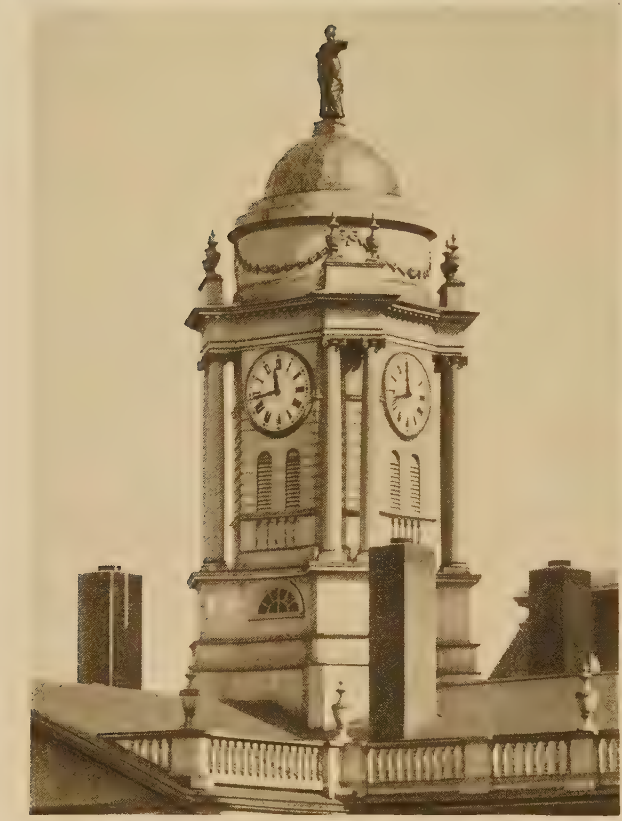
BUILT-IN BOOKCASES
CHIMNEY TOPS
DOOR HOODS
BAY WINDOWS
CUPOLAS
GARDEN GATES
STAIR ENDS
BALCONIES
GARDEN WALLS
ARCADES
PLASTER CEILINGS
CORNICES OF WOOD

1929

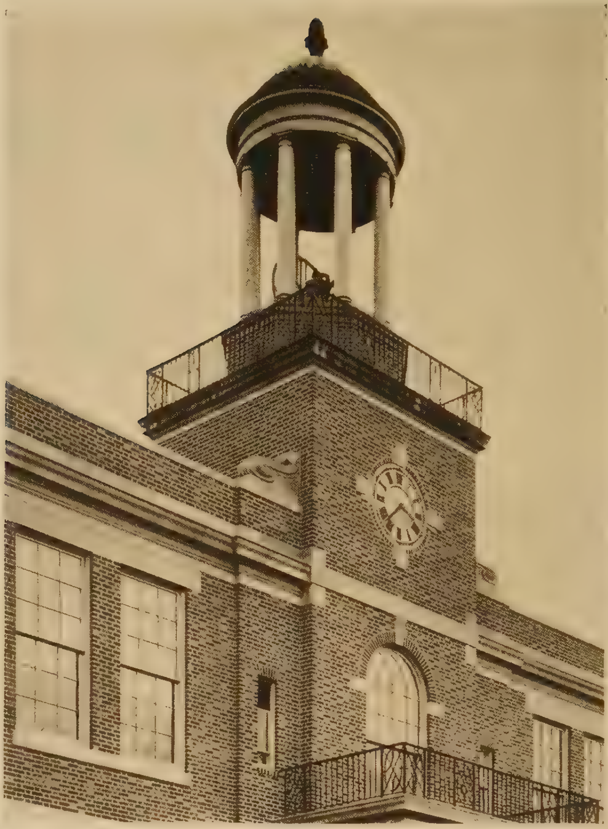
DOORWAY LIGHTING
ENGLISH FIREPLACES
GATE-POST TOPS
GARDEN STEPS
RAIN LEADER HEADS
GARDEN POOLS
QUOINS
INTERIOR PAVING
BELT COURSES
KEYSTONES
AIDS TO FENESTRATION
BALUSTRADES

1930–31

SPANDRELS
CHANCEL FURNITURE
BUSINESS BUILDING ENTRANCES
GARDEN SHELTERS
ELEVATOR DOORS
ENTRANCE PORCHES
PATIOS
TREILLAGE
FLAGPOLE HOLDERS
CASEMENT WINDOWS
FENCES OF WOOD
GOTHIC DOORWAYS
BANKING-ROOM CHECK DESKS
SECOND-STORY PORCHES

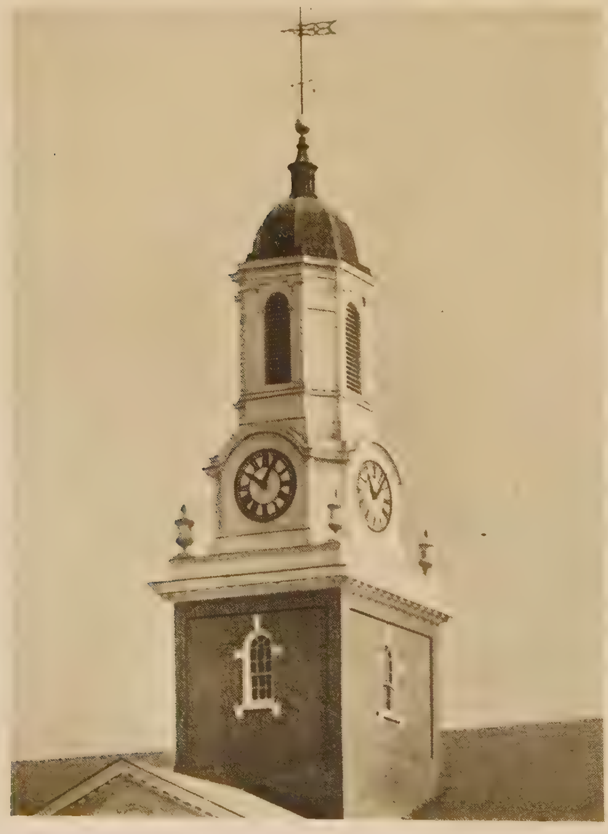


Old State House, Hartford, Conn. Charles Bulfinch

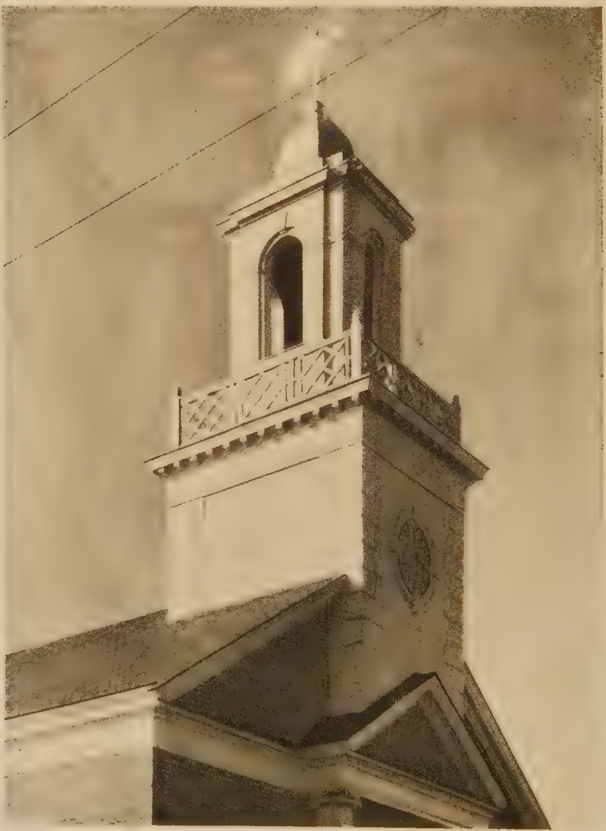


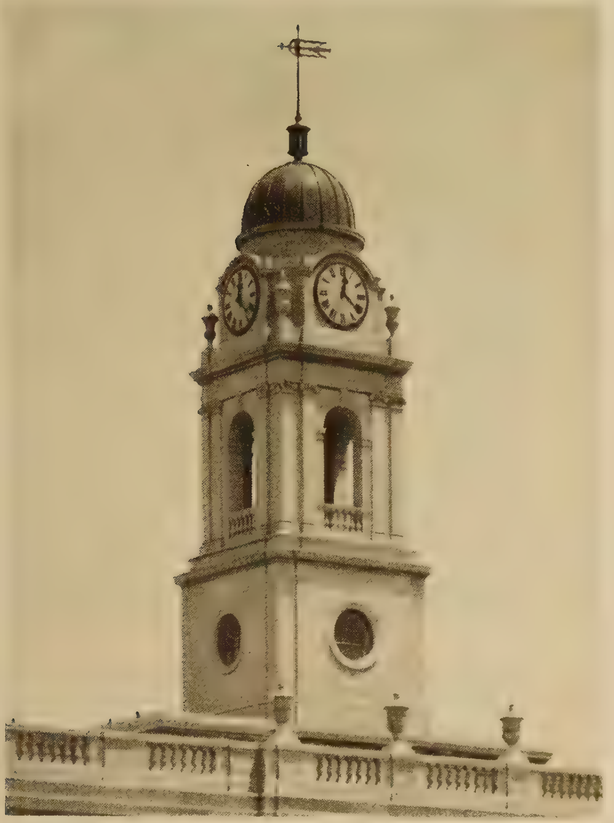
High School, Woodmere, Long Island. Henry Bacon

State Normal School, New Britain, Conn. Guilbert & Betelle

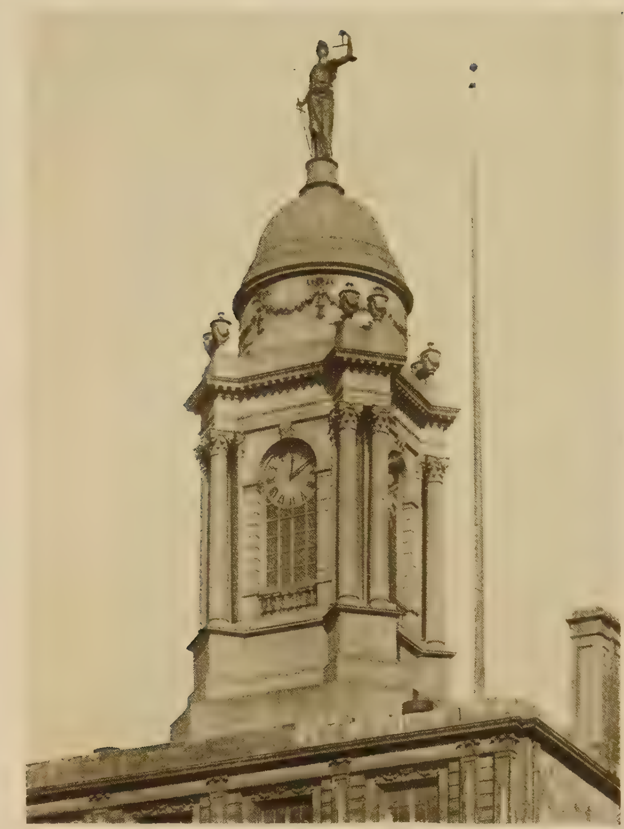


First Church of Kew Gardens, Kew Gardens, Long Island. Hobart Upjohn



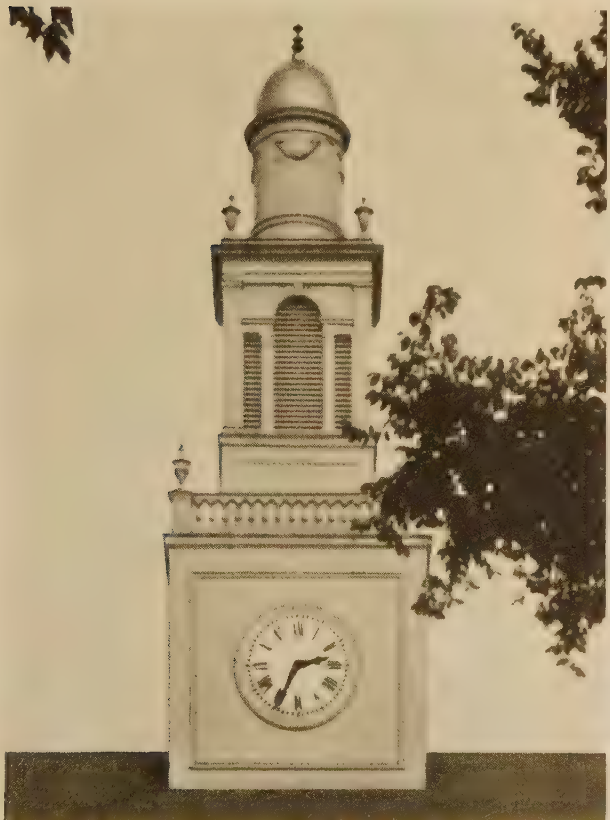


City Hall, East Orange, N. J. J. H. Ely & W. C. Ely

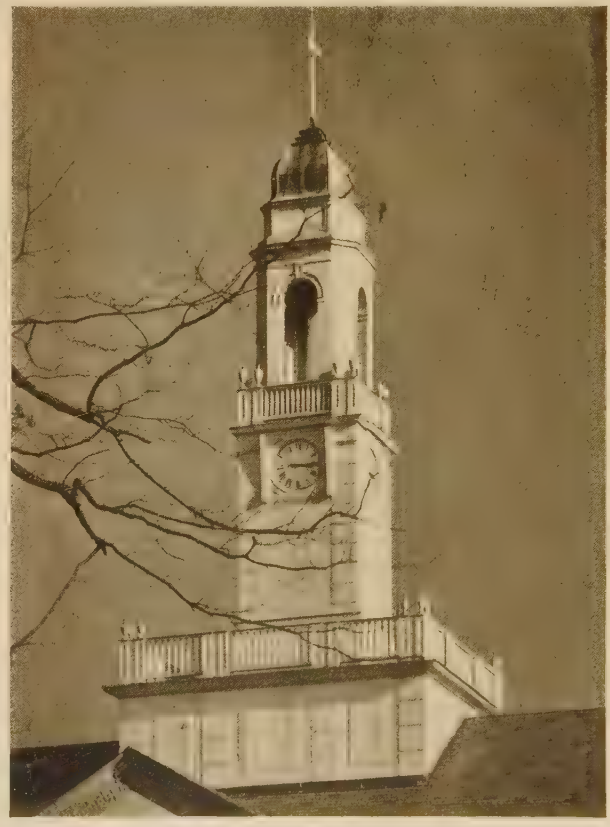


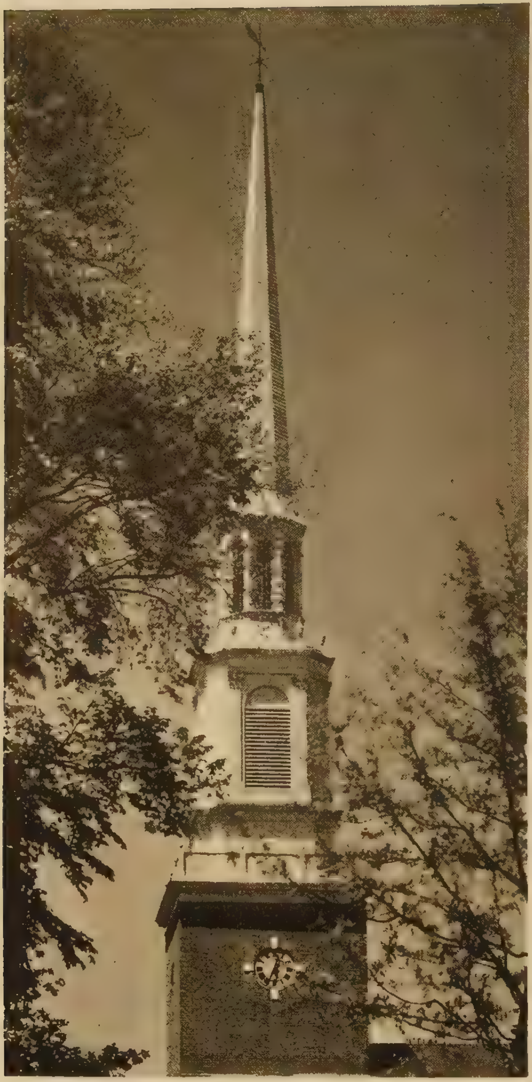
City Hall, New York City. Joseph Mengin, John McComb; Grosvenor Atterbury

City Hall, Burlington, Vt. McKim, Mead & White

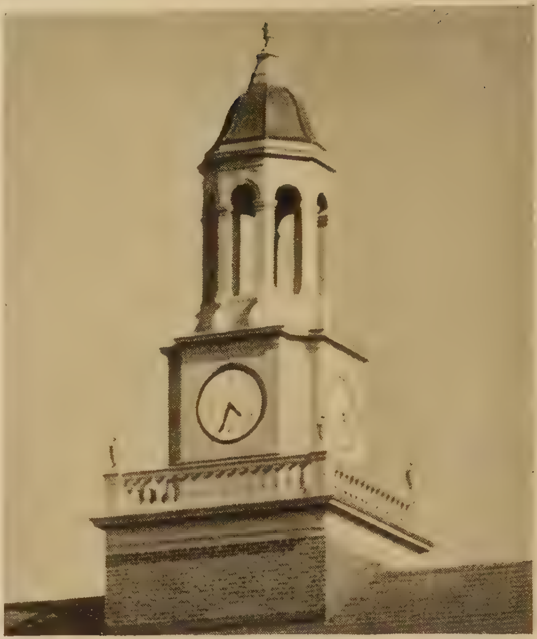


Brothers College, Madison, N. J. Henry B. Marsh

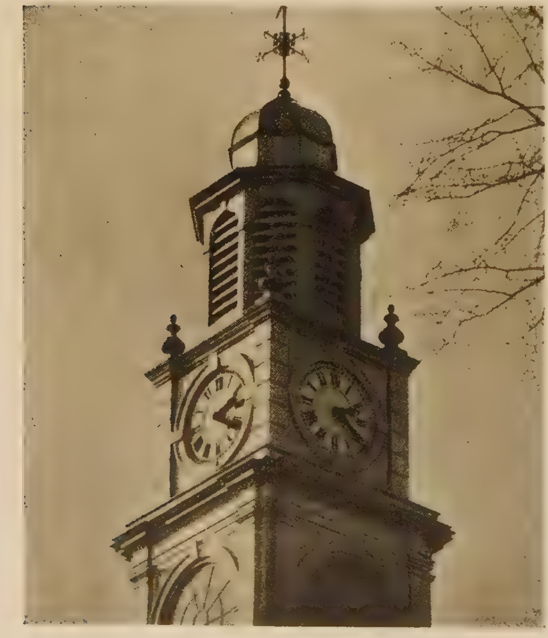




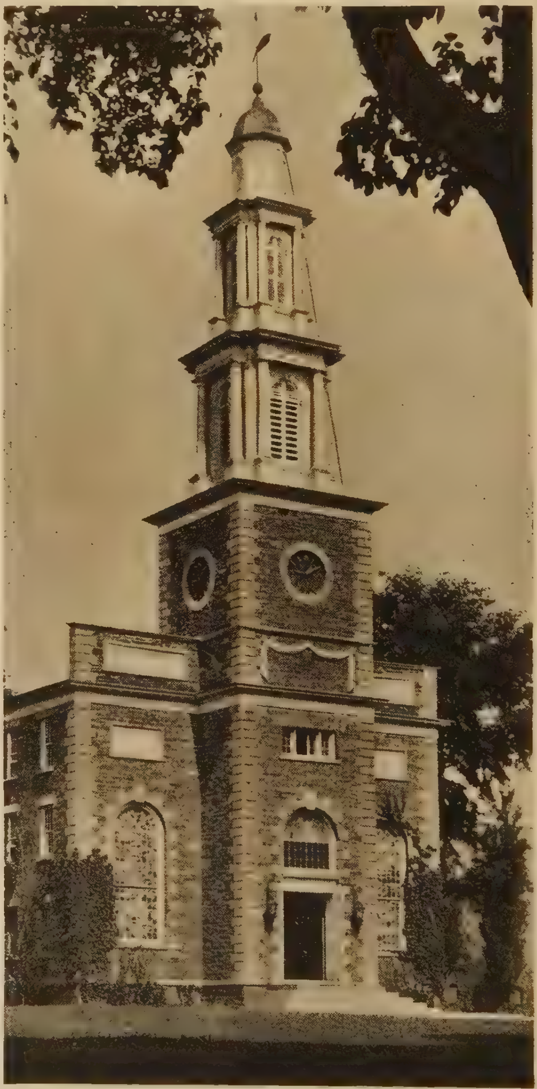
First Presbyterian Church, Concord, N. C. Hobart Upjohn



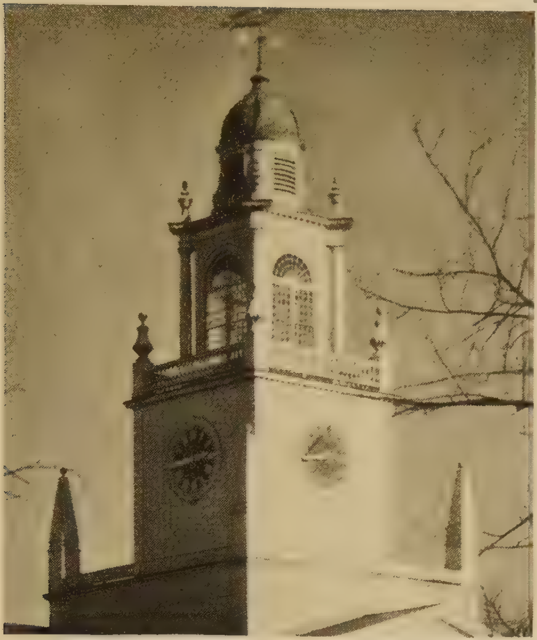
Municipal Building, Bloomfield, N. J. W. O. Bartlett



City Hall, Mt. Vernon, N. Y. George M. Bartlett

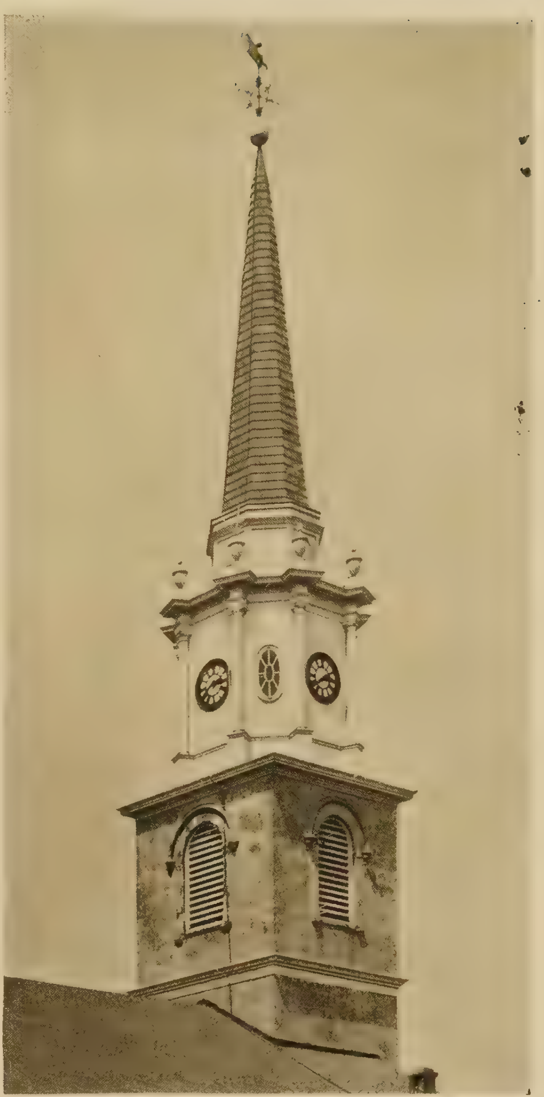


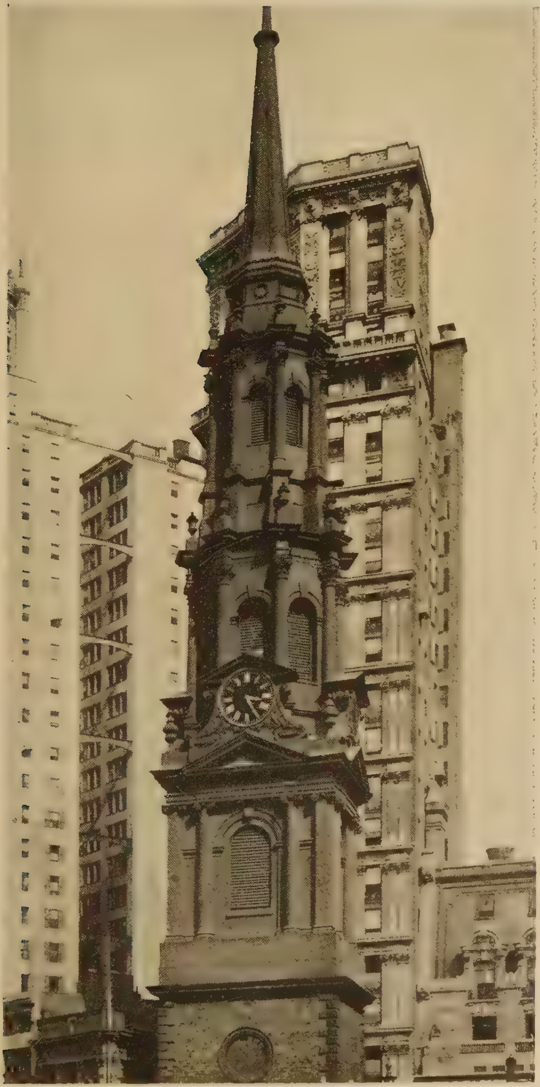
Chapel, Hamilton College, Clinton, N. Y. Philip Hooker



Samuel Phillips Hall, Phillips Academy, Andover, Mass. Guy Lowell

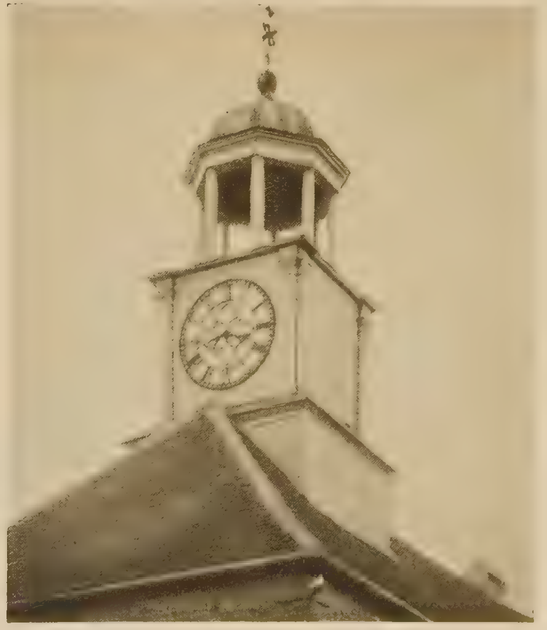
Reformed Dutch Church, Flatbush, Long Island. Meyer & Mathieu

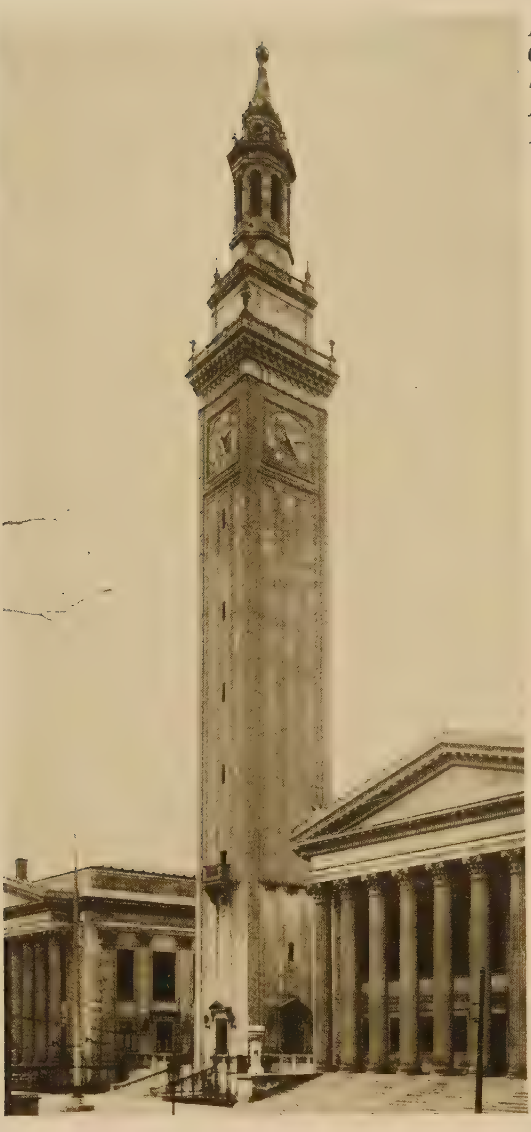




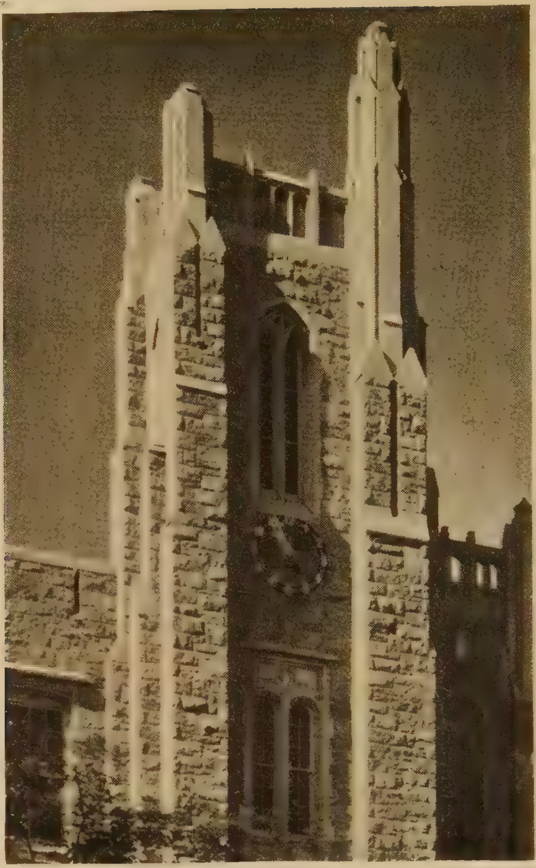
St. Paul's Church, New York City. MacBean

Market Hall, Buckinghamshire, England

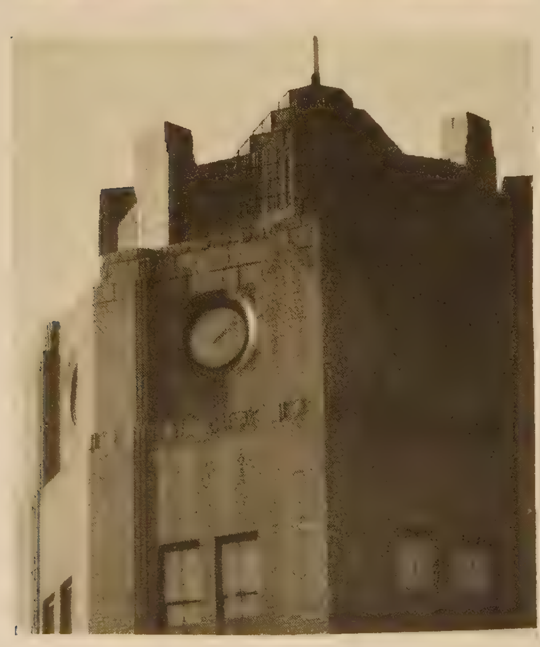




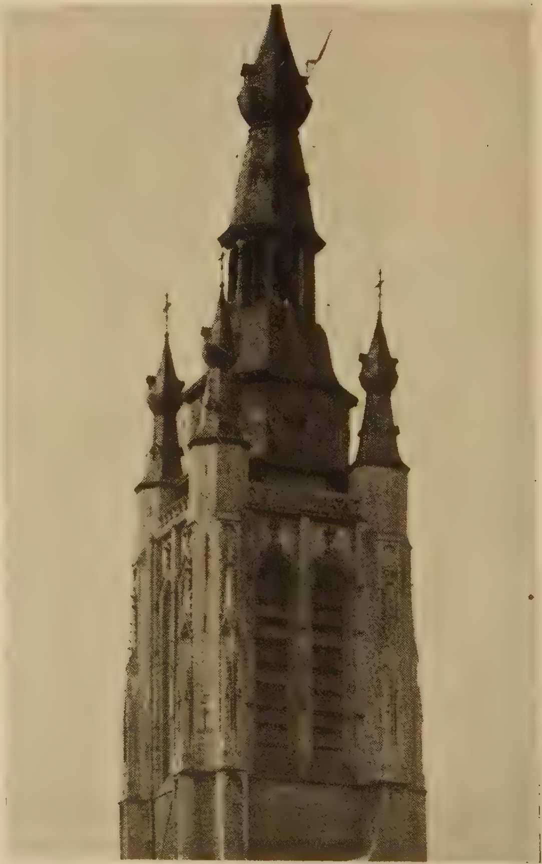
Municipal Group, Springfield, Mass. Pell & Corbett



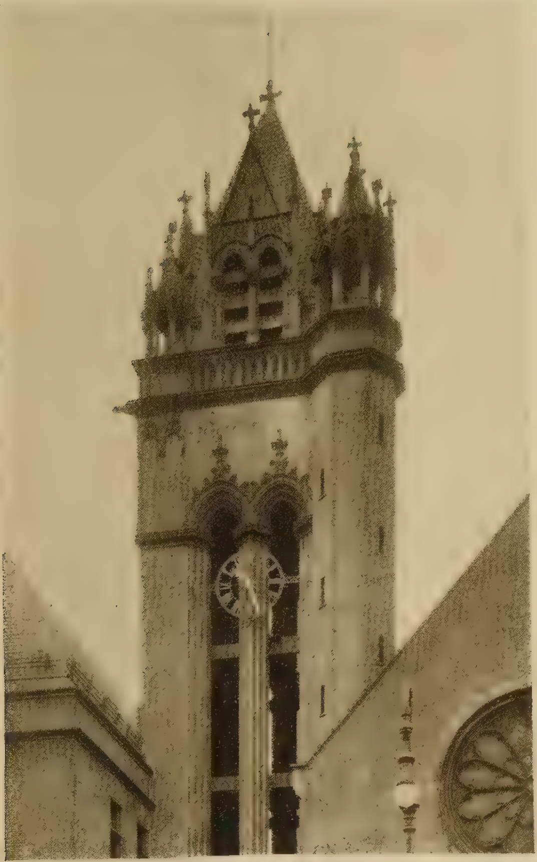
High School, White Plains, N. Y. Starrett & Van Vleck



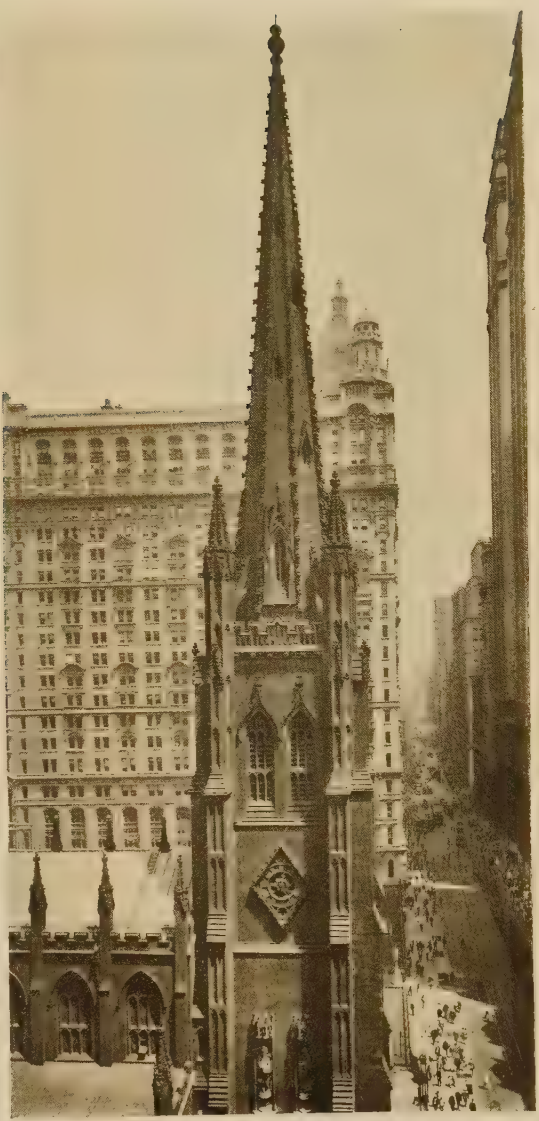
Slote Building, Mt. Vernon, N. Y. Shreve & Lamb



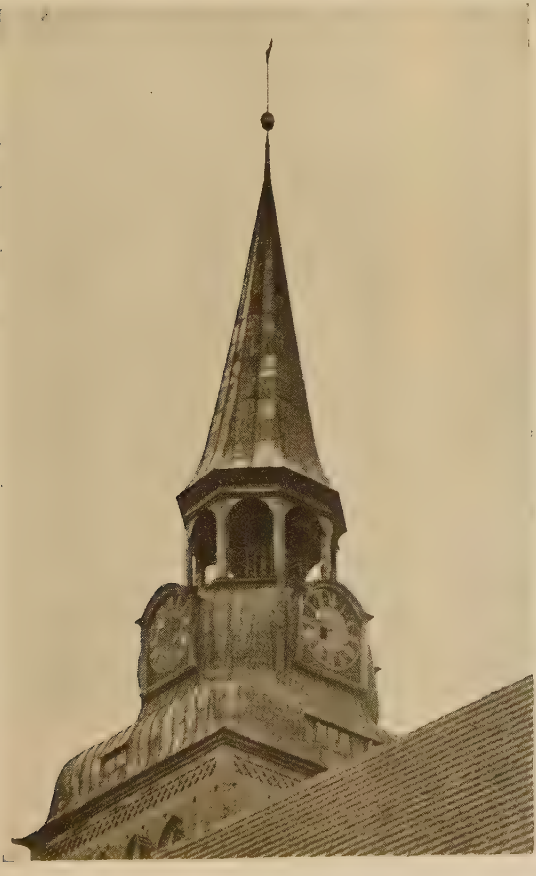
Church of St. Martin's, Courtrai, Belgium



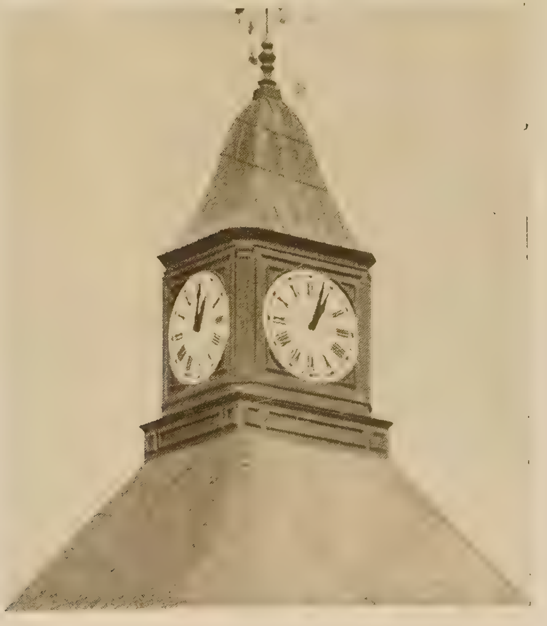
*Grace Chapel,
New York City.
Henry Otis
Chapman*



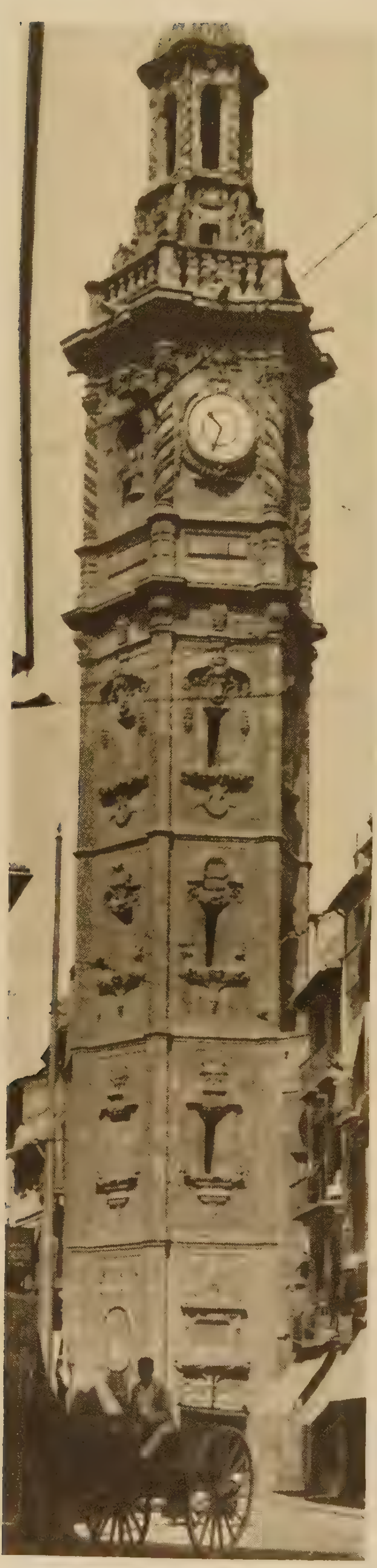
*Trinity Church,
New York City.
Richard
Upjohn*



*Pfarrkirche,
Güstrow,
Germany*

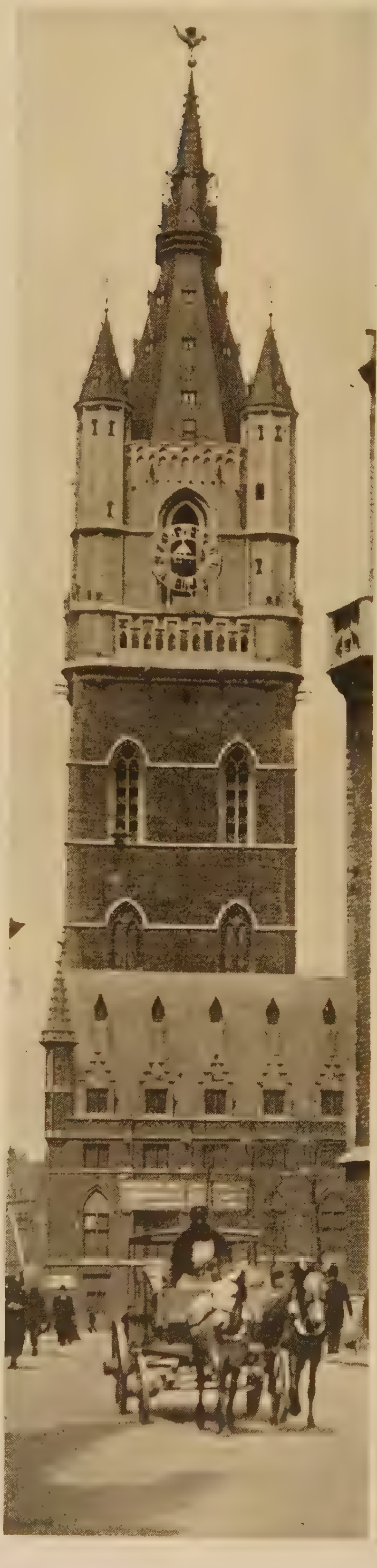


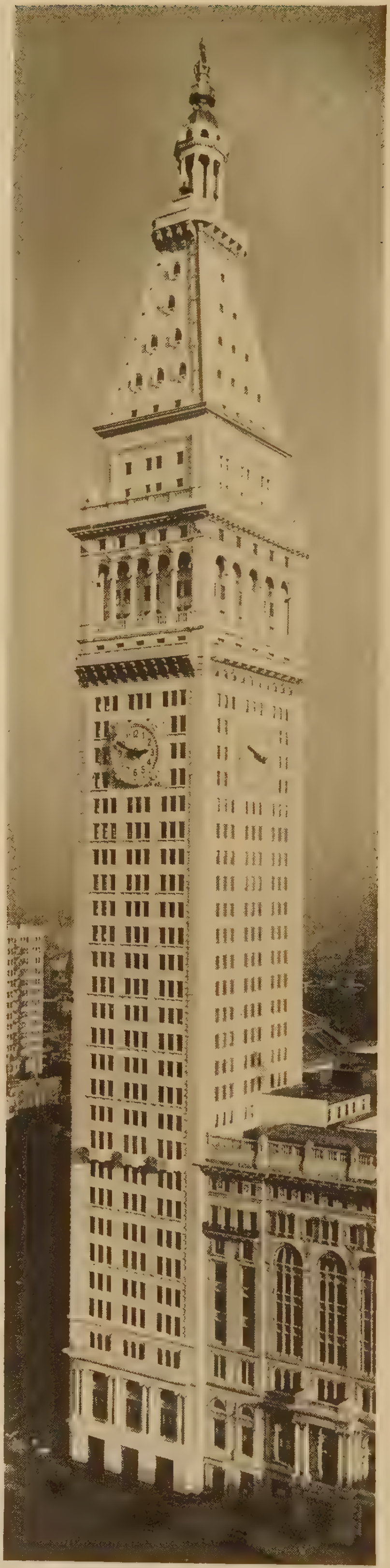
*Store Group,
Radburn, N. J.
Frederick Lee
Ackerman*



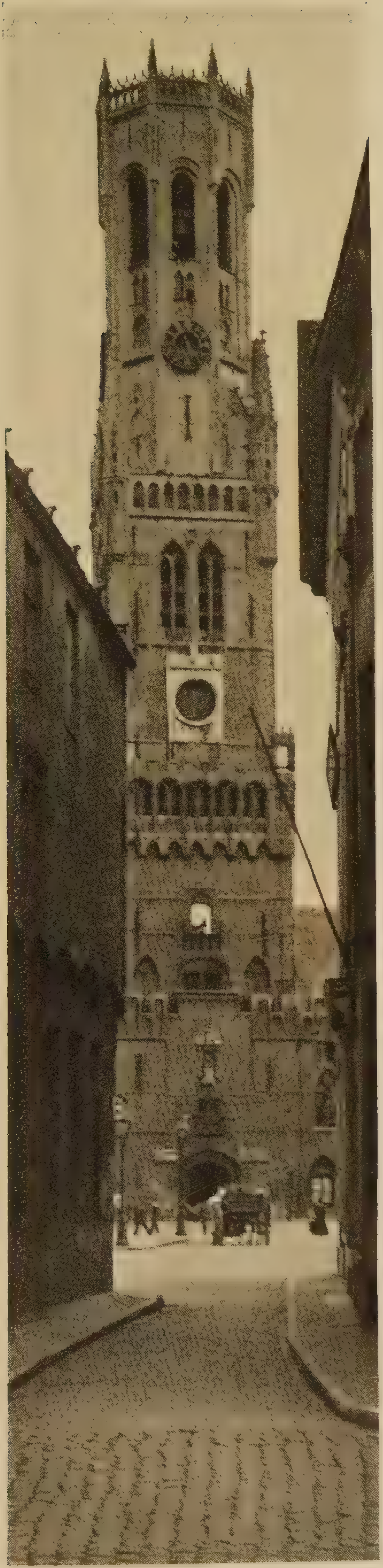
The Clock Tower, Valencia, Spain

Ghent, Belgium, 1320–39; restored 1912–13



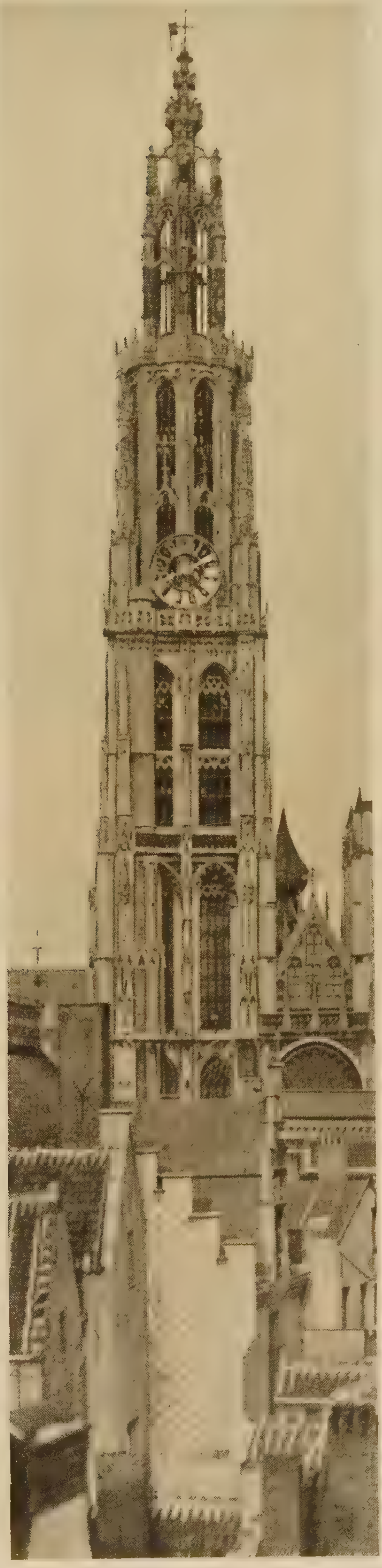


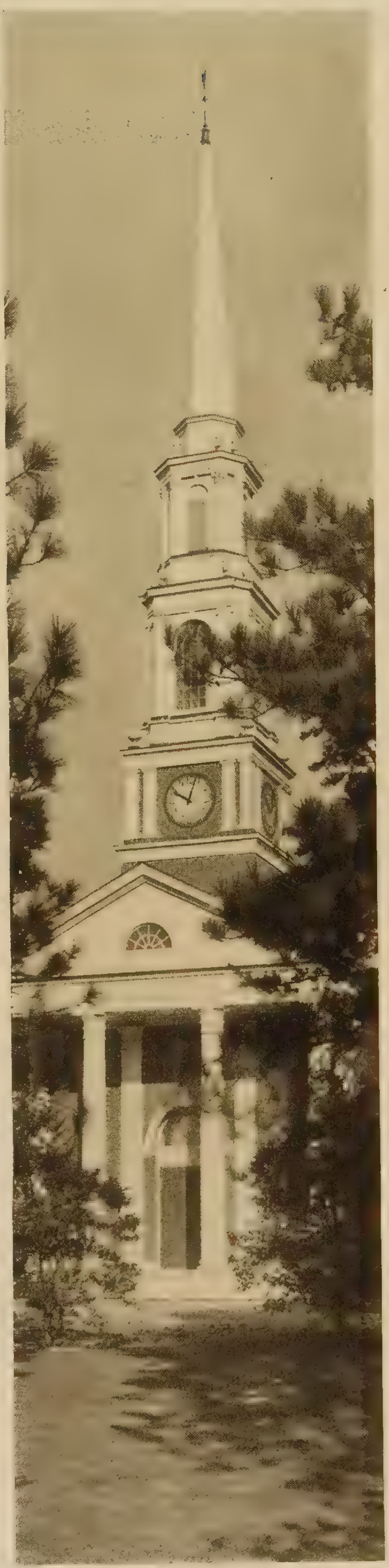
Metropolitan Tower, New York.
N. Le Brun & Sons



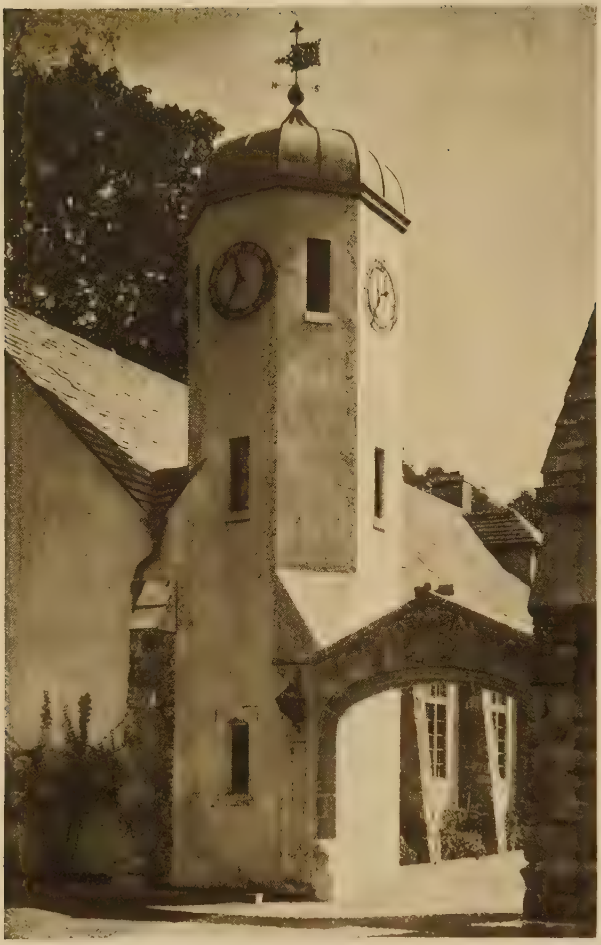
Belfry, Bruges, Belgium

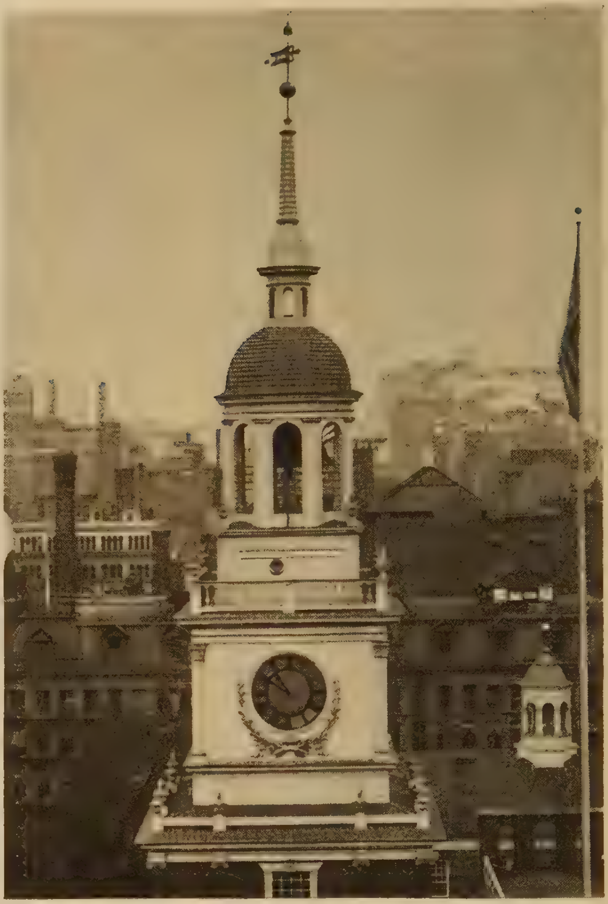
The Cathedral, Antwerp, Belgium





Village Chapel, Pinehurst, N. C.
Hobart Upjohn



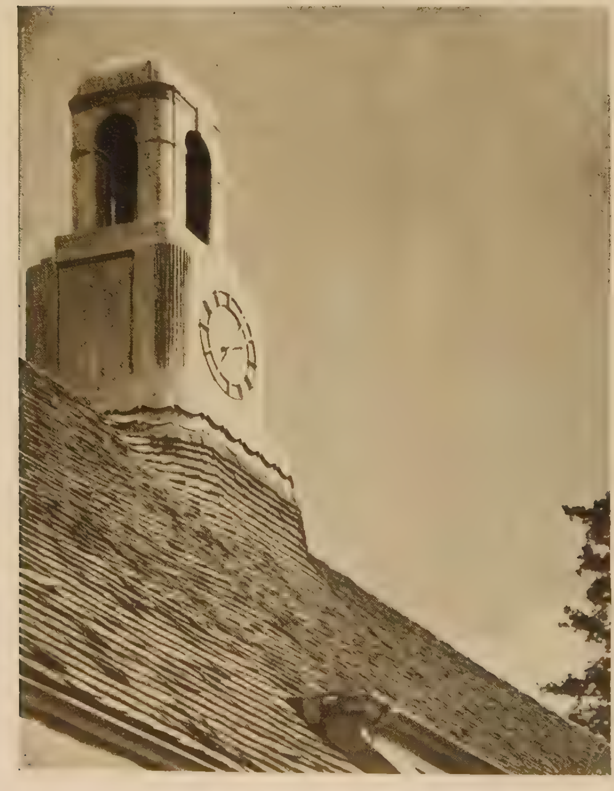


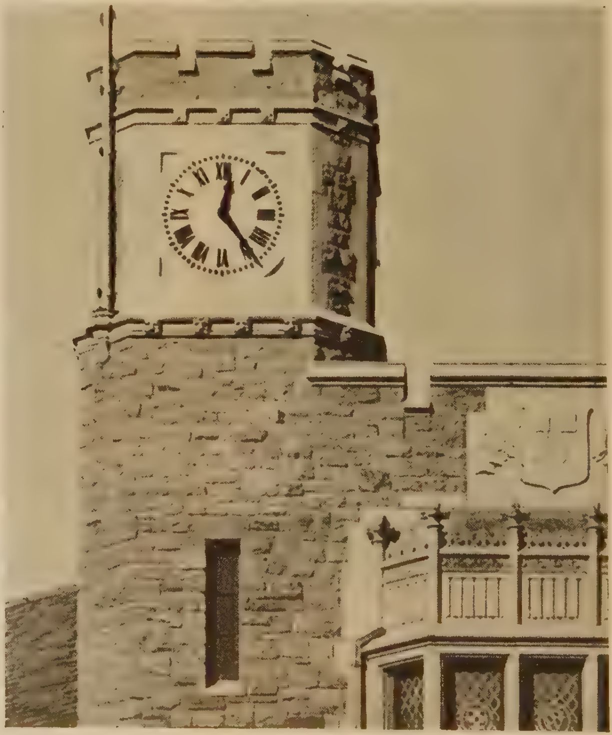
A Gate Lodge
Michael Stillman

Independence Hall,
Philadelphia

Garage Group
Herman Brookman

School, Pelham
Tooker & Marsh



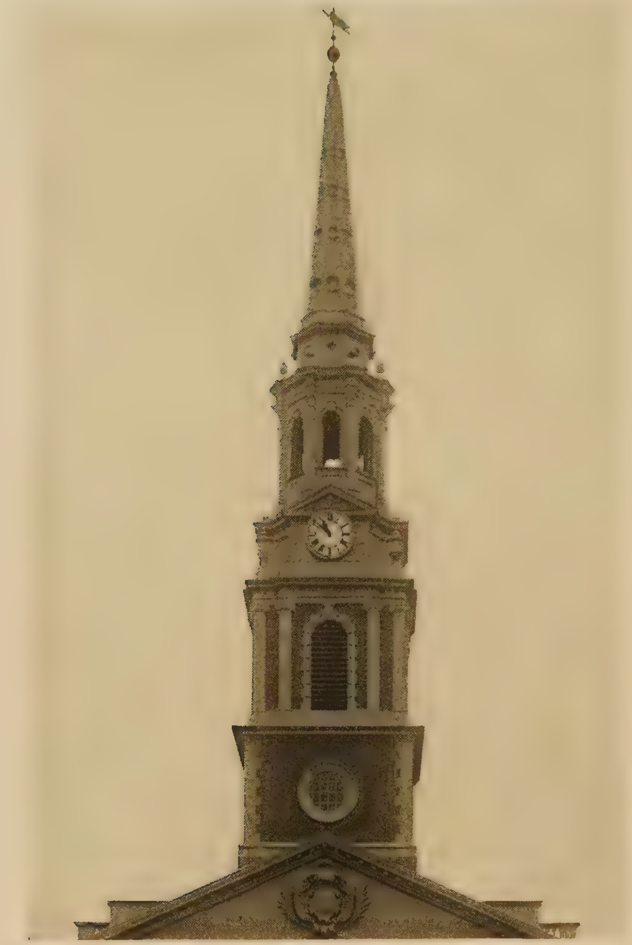


A California School
Ralph C. Flewelling

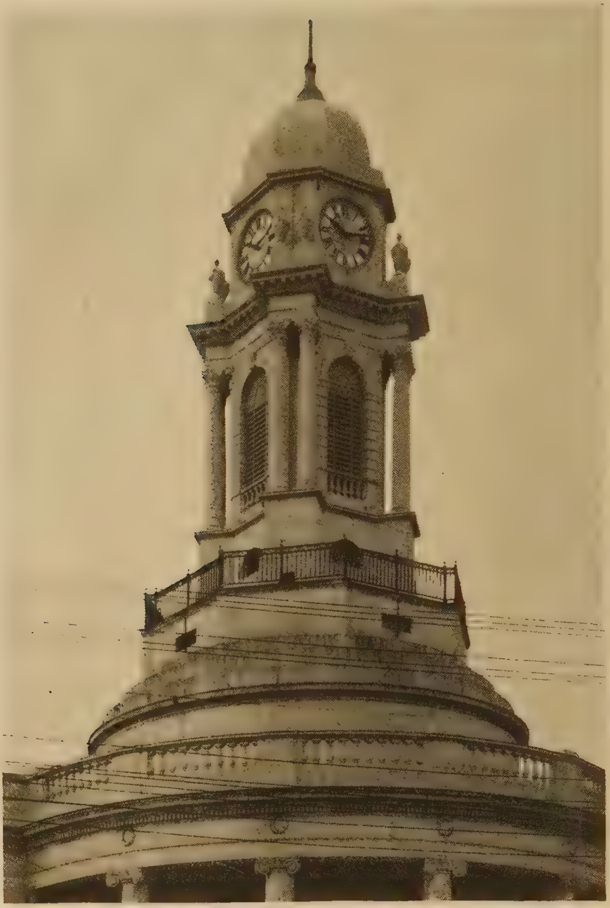
Wellesley, Mass.
Benjamin Proctor

Forest Hills, N. Y.
Grosvenor Atterbury

California
Gordon B. Kaufmann



© Harris & Ewing

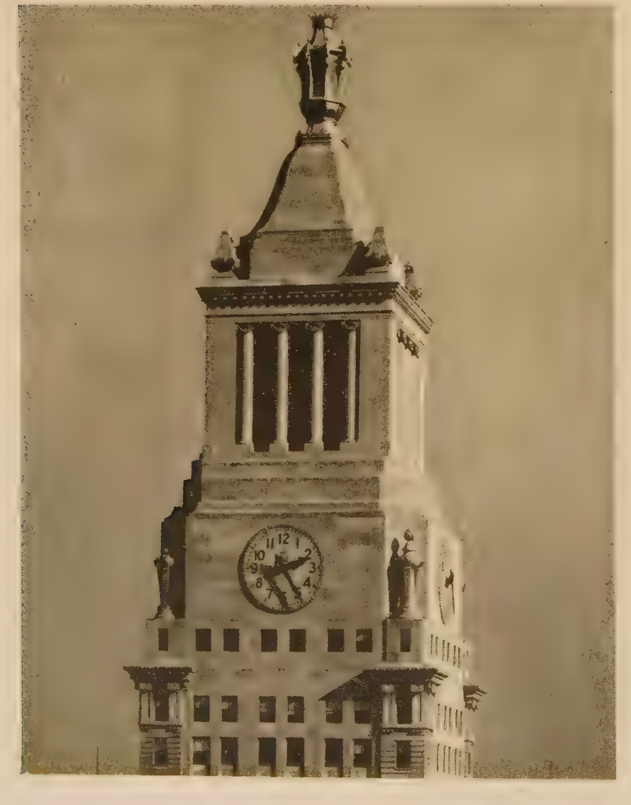


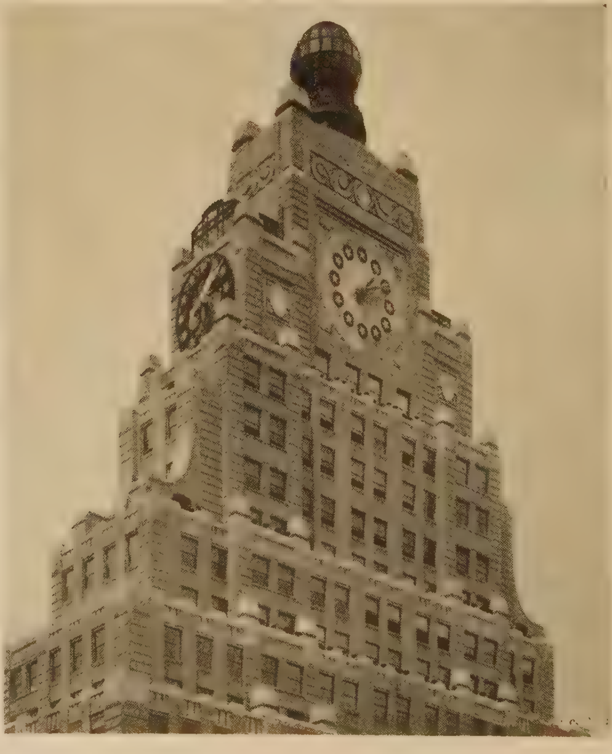
Coolidge, Shepley,
Bulfinch & Abbott

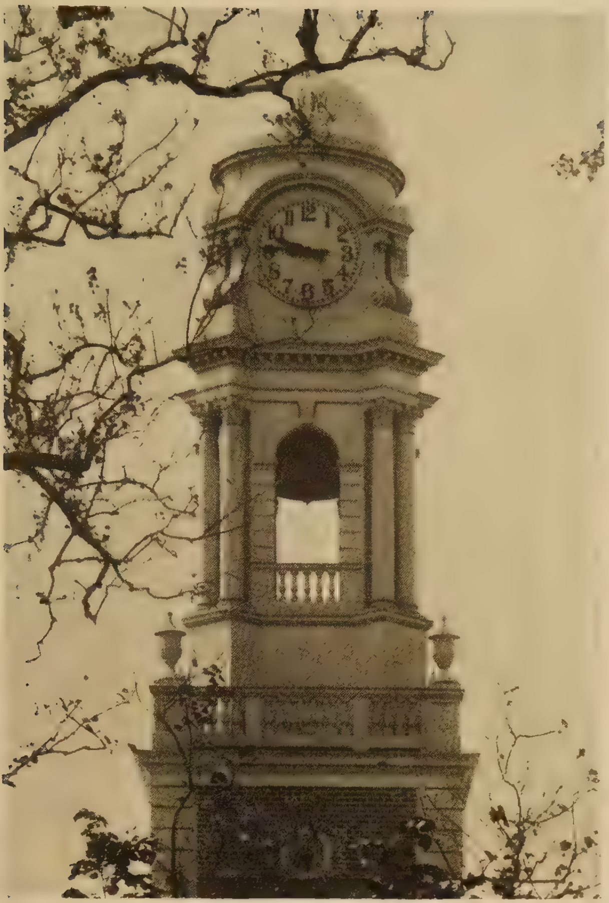
Germantown Town Hall
City Architect

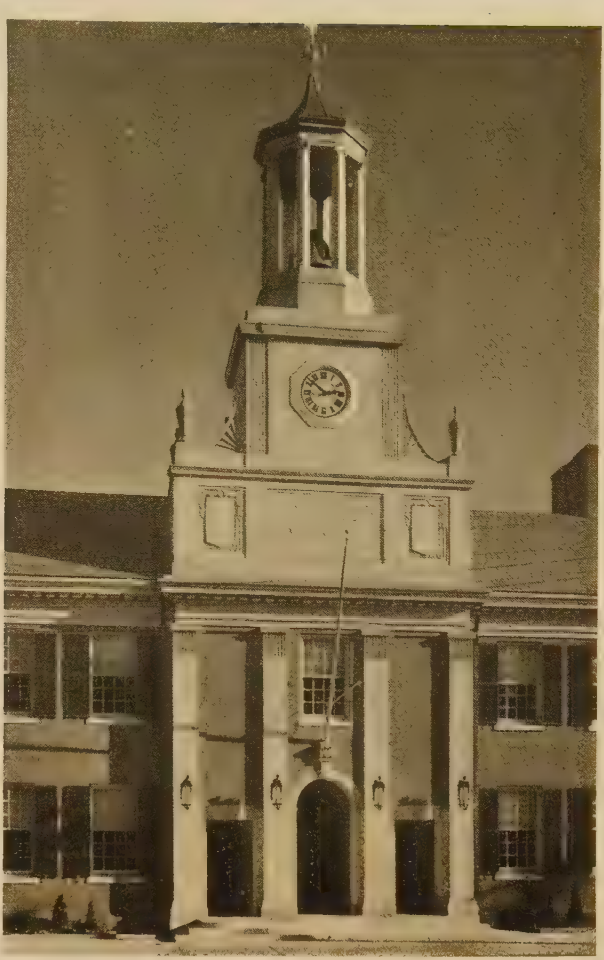
New York
Warren & Wetmore

Paramount Building, New York
Rapp & Rapp







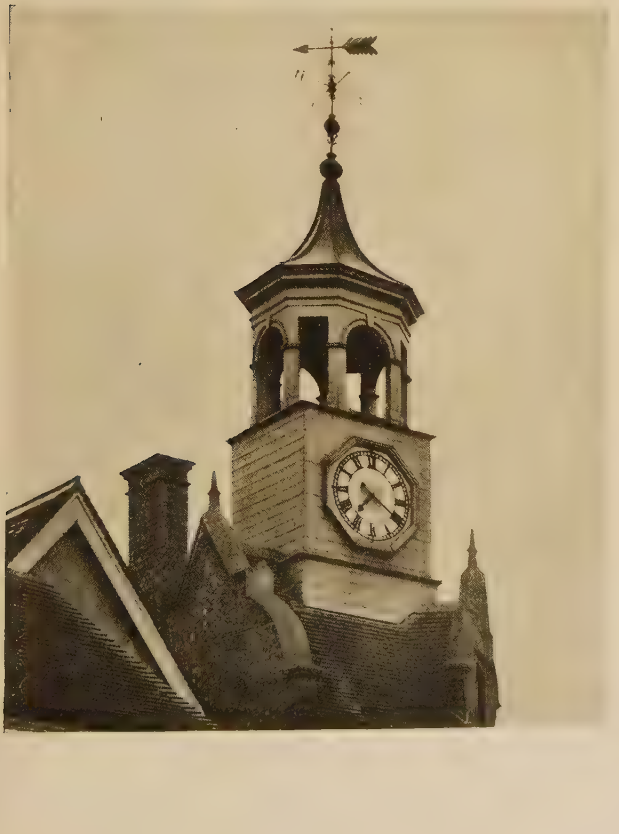


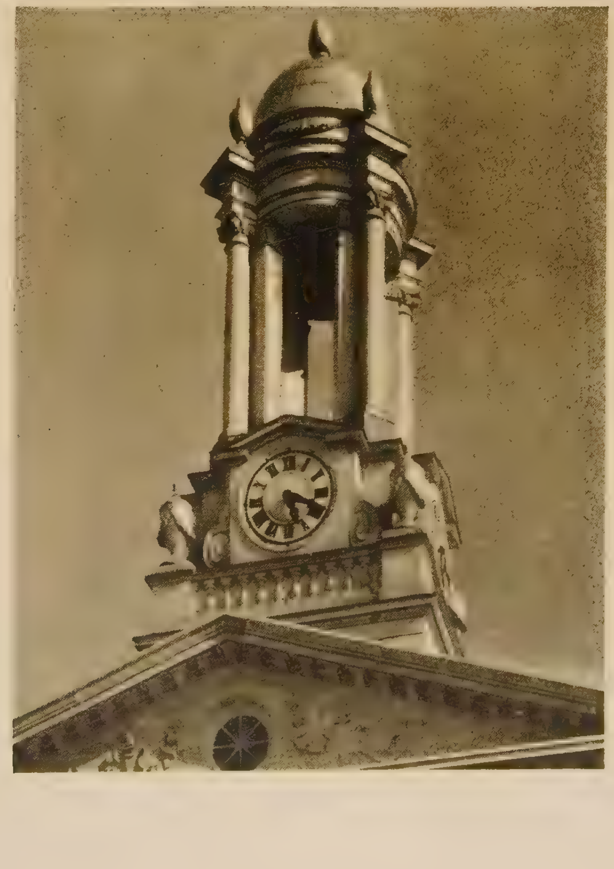
Hempstead Town Hall
Steward Wagner

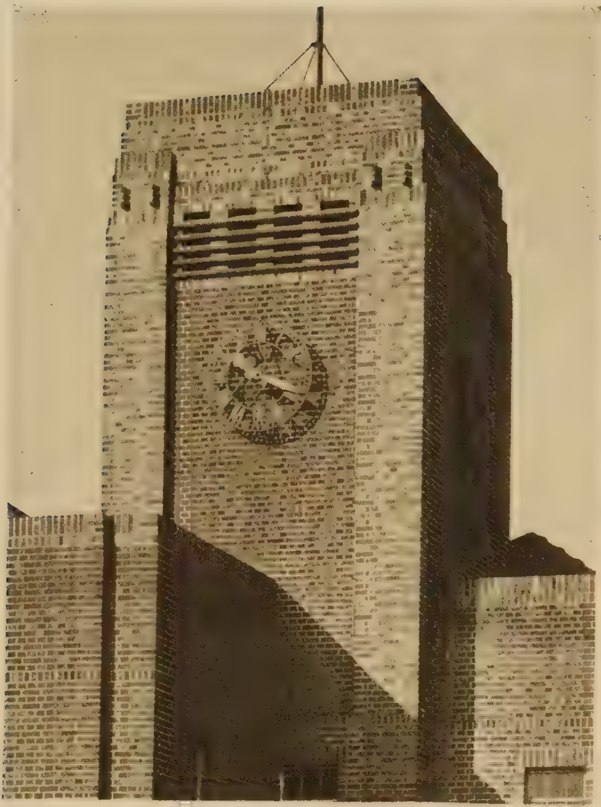
Westboro, Mass.
Kilham, Hopkins & Greeley

Ampthill, Bedfordshire
c. 1765

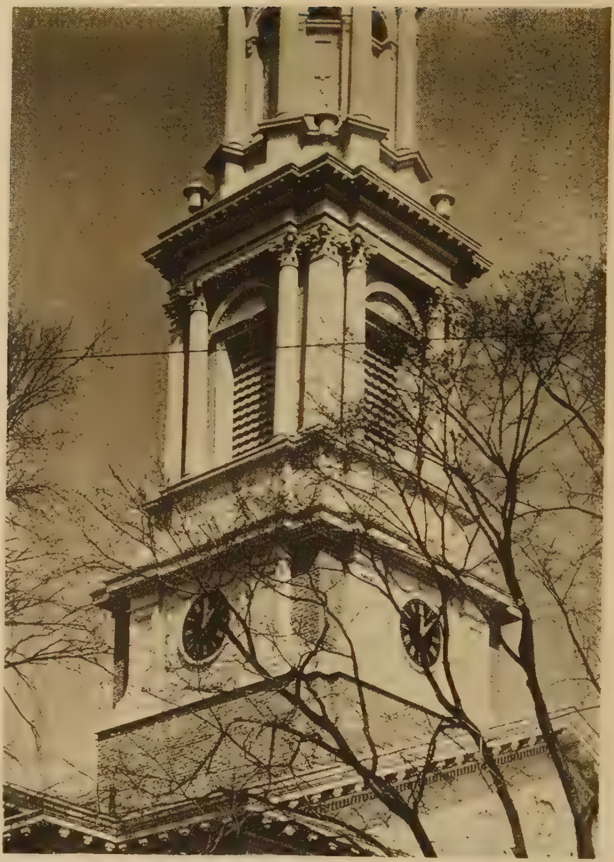
Waltham, Mass.
Kilham, Hopkins & Greeley



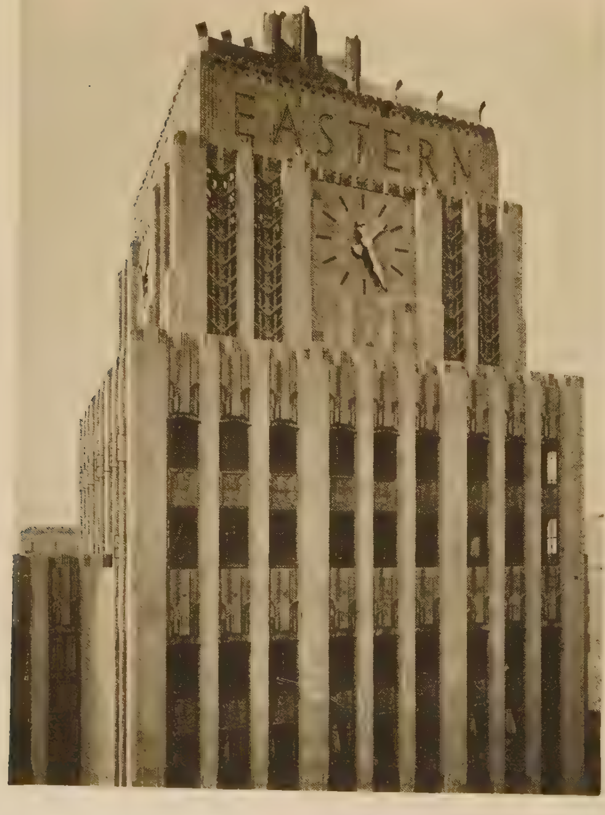




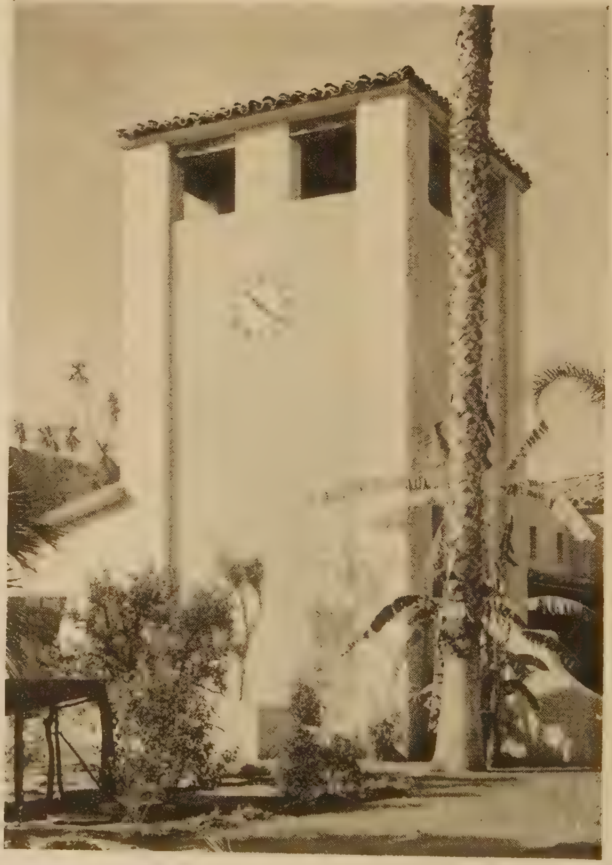
Bakeries
Leicester, England



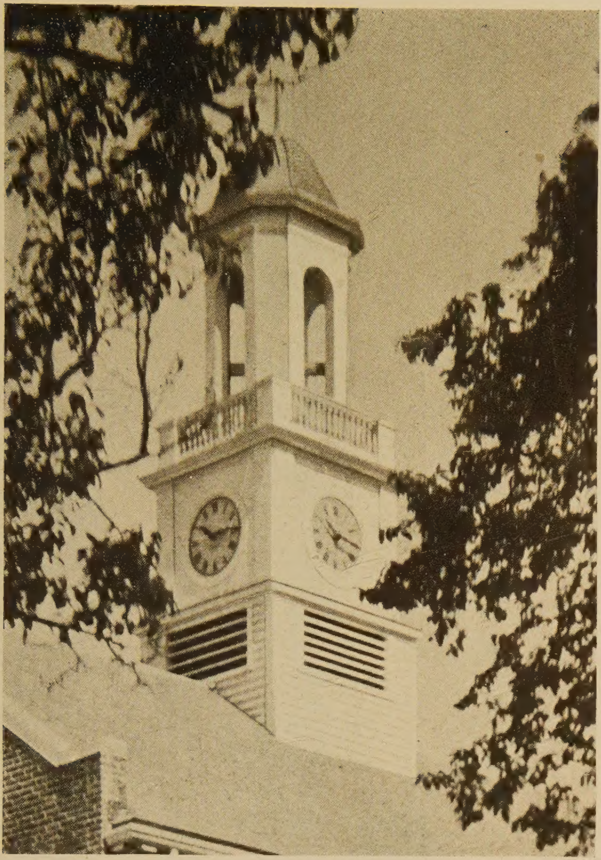
Hartford, Conn.
W. F. Brooks

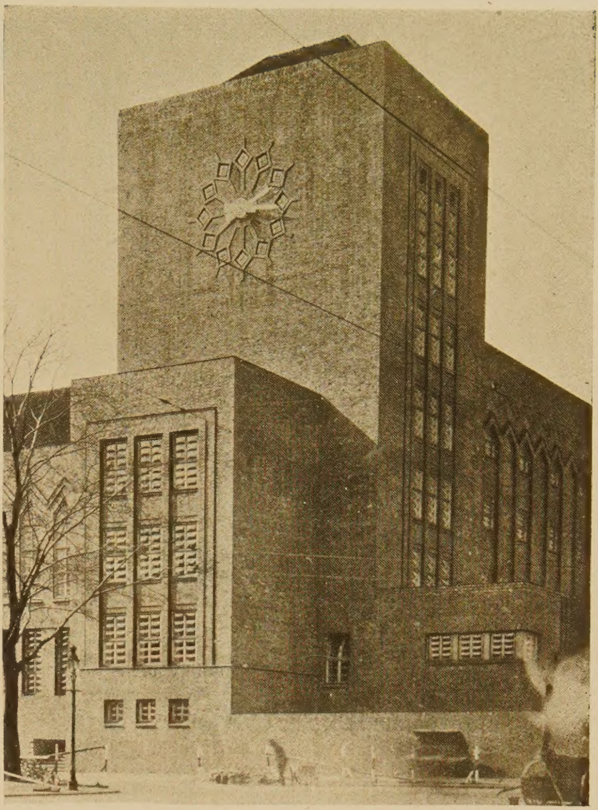


Los Angeles
Claude Beelman



Hollywood
L. G. Scherer



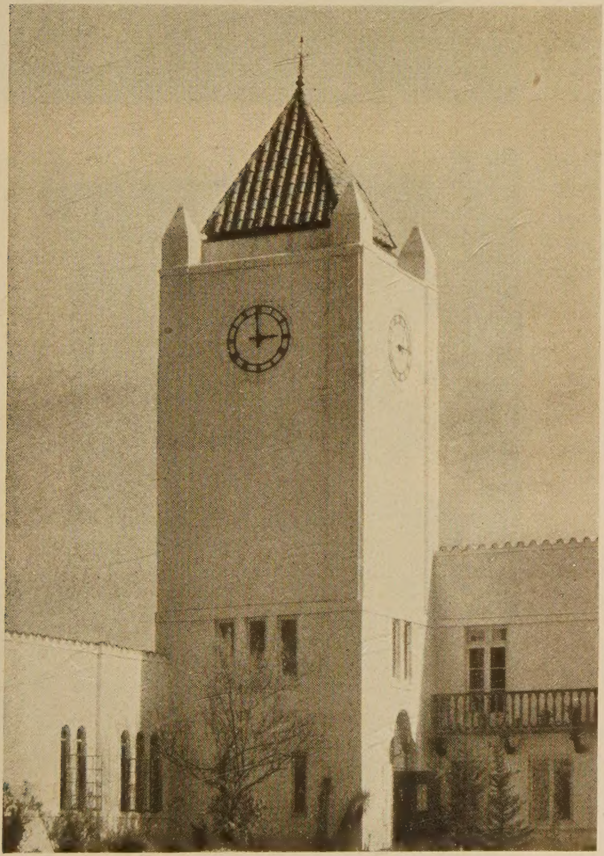


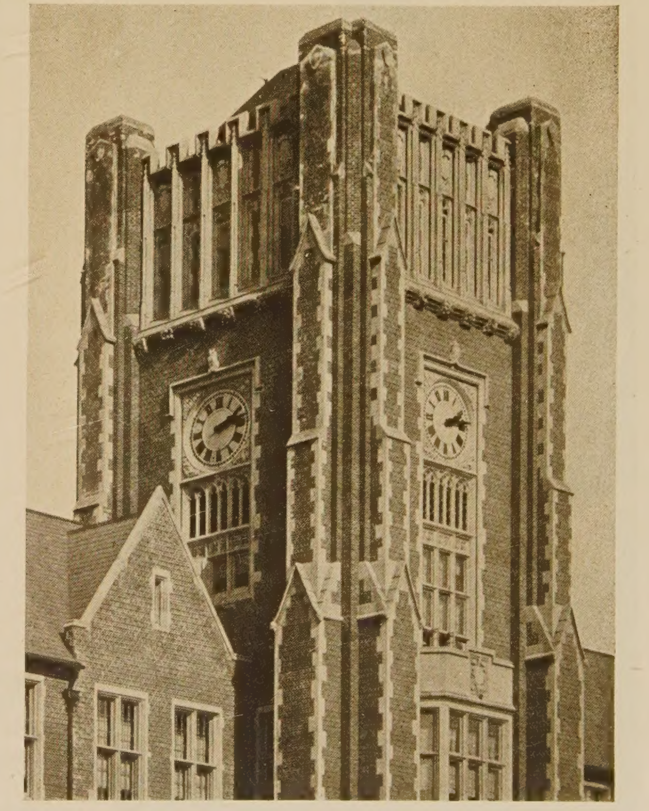
Tewksbury, Mass.
Kilham, Hopkins & Greeley

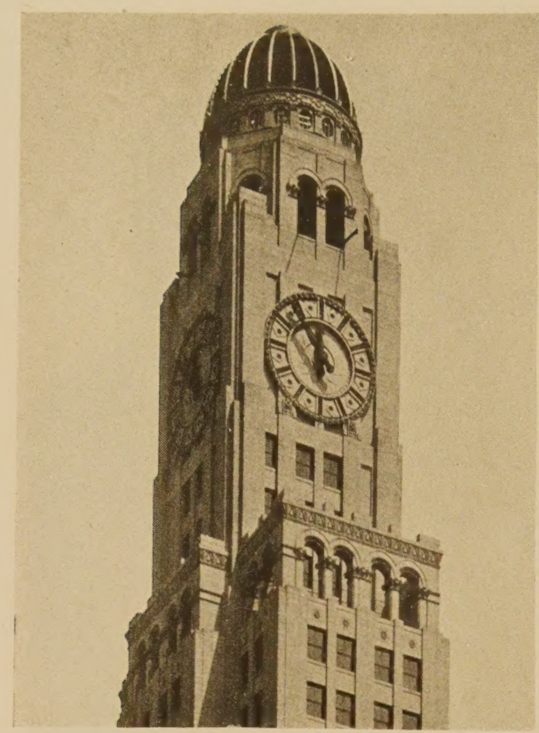
Girls' School,
Hamburg

Houston, Texas
Howell & Thomas

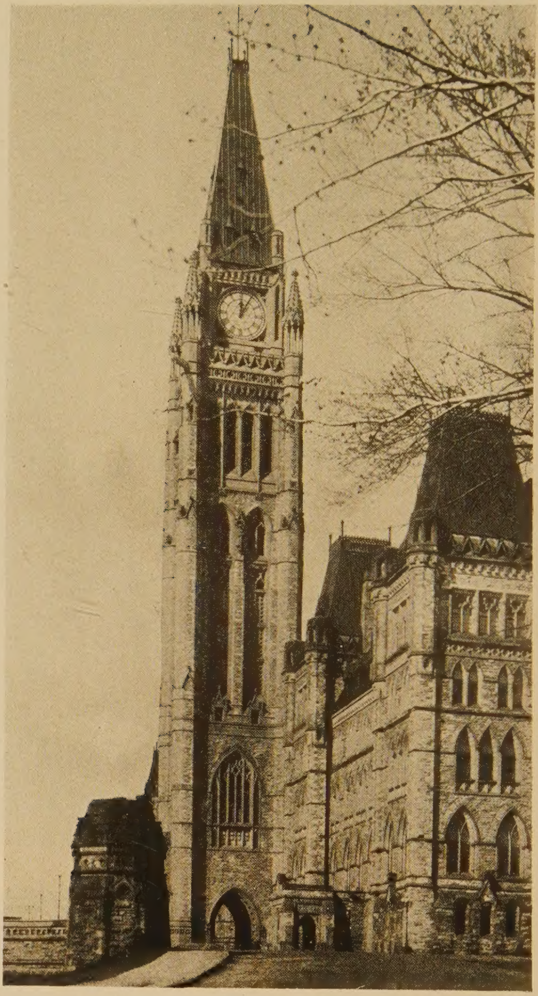
High School, New Jersey
Guilbert & Betelle



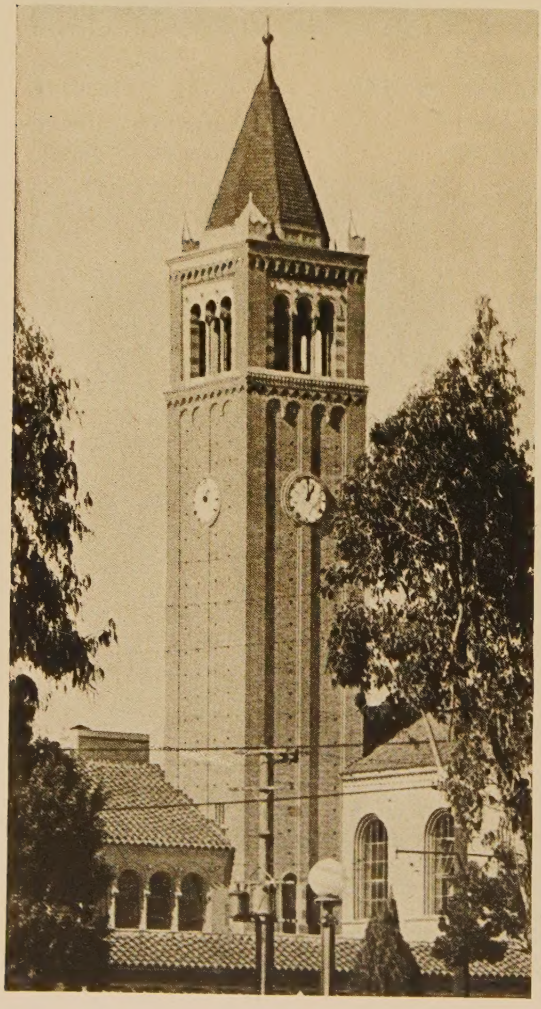




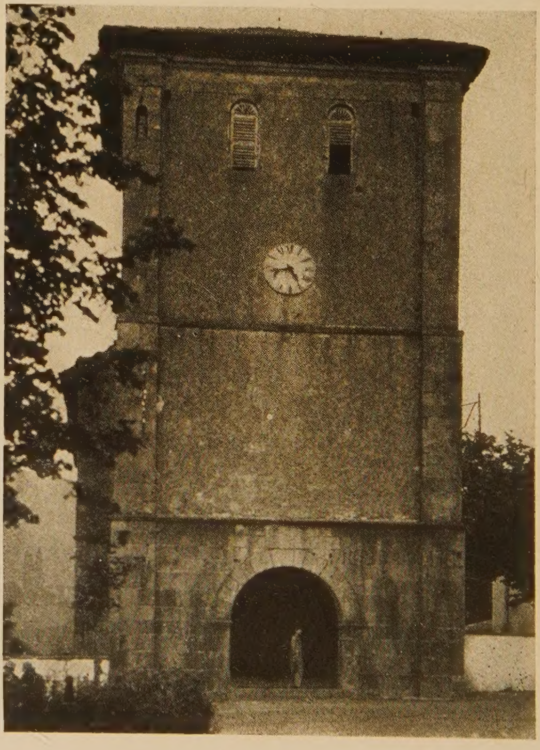
Williamsburg Savings Bank, Brooklyn, N.Y. Halsey, McCormack & Helmer, Inc.



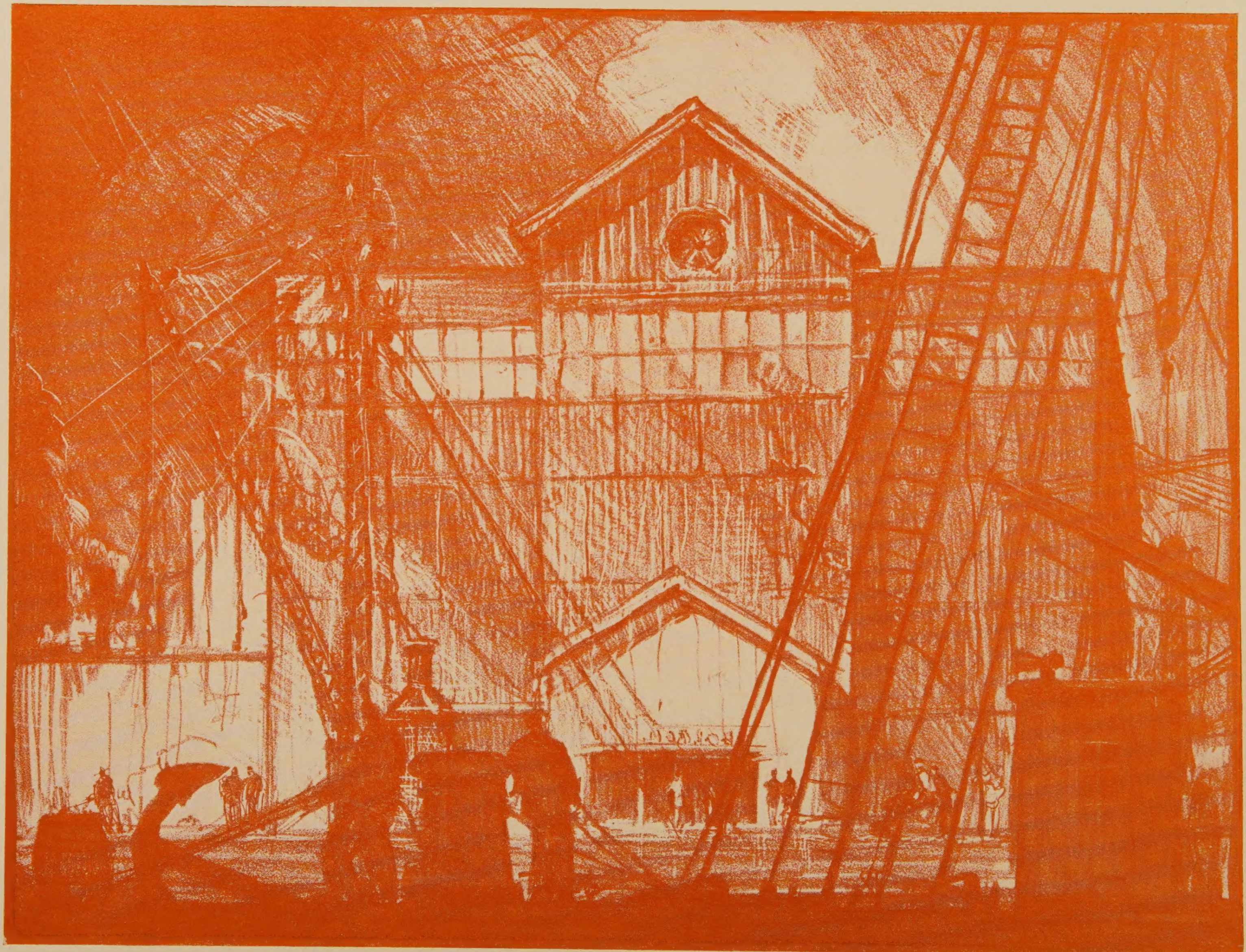
Peace Tower, Parliament Buildings, Ottawa, Canada. John A. Pearson



Hall of Philosophy, University of Southern California. Ralph C. Flewelling



Tenth-Century Church, Ascain, France



A Shipyard
in Naples
*From the drawing
in red chalk by*
GEORGE NELSON